"EFFECTIVENESS OF SLOW STROKE BACK MASSAGE ON REDUCTION OF ANXIETY AND SHOULDER PAIN AMONG STROKE PATIENTS IN MEDICAL WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI"

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MASTER OF SCIENCE IN NURSING

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CERTIFICATE

This is to certify that this dissertation titled**, "EFFECTIVENESS OF SLOW STROKE BACK MASSAGE ON REDUCTION OF ANXIETY AND SHOULDER PAIN AMONG STROKE PATIENTS IN MEDICAL WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI"** is a bonafide work done by **Mrs. G.Kousalya**, College of Nursing, Madurai Medical College, Madurai - 20, submitted to the Tamil Nadu Dr.M.G.R. Medical University, Chennai in partial fulfillment of the requirements for the award of the degree of Master of Science in Nursing, Branch I, Medical Surgical Nursing under our guidance and supervision during the academic period from 2010—2012.

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ABSTRACT

A study to assess the effectiveness of slow stroke back massage on reduction of anxiety and shoulder pain among stroke patients in medical ward, Government Rajaji hospital, Madurai.

Objective: The main aim of the study is to assess the effectiveness of slow stroke back massage on reduction of anxiety and shoulder pain among stroke patients Conceptual framework: The conceptual framework selected for the study was based on Callista Roy's adaptation model (1991). **Design:** A non equivalent quasi experimental pre test – post test control group design was employed in this study. **Setting:** The study was conducted in medical ward, Government Rajaji hospital, Madurai. **Subjects:** The subjects of the study were stroke patients with anxiety and shoulder pain. 60 stroke patients were selected by purposive sampling technique. 30 subjects were assigned to experimental group and 30 subjects were assigned to control group. **Intervention:** The intervention given in the study was slow stroke back massage. The duration of the intervention was 10 minutes. The intervention was given for the experimental group for seven consecutive days. The control group was given only routine care. **Main outcome measures:** Pre test was conducted on the first day for both groups using modified speilberger state trait anxiety scale and numerical rating pain scale. On the seventh day, post test was conducted for both experimental and control group. The data was analyzed using descriptive and inferential statistics. **Results:** The findings of the study revealed that slow stroke back massage reduced anxiety and shoulder pain among stroke patients at the t – value 19.9 at 0.01 level of significance with 29 degree of freedom and at 24.19 at .01 level of significance with 29 degree of freedom respectively, which was considered as highly significant. Thus the inferential statistics displayed that slow stroke significantly diminished the level anxiety and shoulder pain among experimental group stroke patients. **Conclusion:** Slow stroke back massage is an effective intervention for reducing shoulder pain and anxiety in stroke patients. From a nursing perspective, this nursing practice provides a challenge and an opportunity for nurses to blend alternative therapies with technology to provide more individualized and holistic patient care.

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CHAPTER - I
INTRODUCTION

"Not everything should be accepted as good merely because it is old, nor should anything to be rejected simply because it is new".

Kalidasa

Facts do not cease to exist because they are ignored

Aldous Huxley

Stroke is a major public health concern. As per Feigin VL (2005), stroke is a medical emergency and can cause permanent neurological damage, complications, and lead to death. It is the leading cause of adult disability in the United States and Europe and it is the second leading cause of death worldwide. This is the most exciting era in the management of patients with stroke. Before 400 B.C, Hippocrates first described a clinical syndrome and he labeled it as apoplexy, in Greek it means "struck with violence or paralysis".

ICMR stated that the prevalence of stroke in general population varies from 40 to 270 per 100,000 in India. A study by the world health organization stated that the incidence of stroke in India is around 130 per 100,000 people in India. It further says that about 20 percent of heart patients are susceptible to it. Approximately 12% of all strokes occur in those aged <40 years. The male to female ratio was 1:7. One report on stroke subtype analysis revealed that there was higher prevalence of cerebral hemorrhage in India compared to that in the western countries.

According to the estimates by the National commission on Macroeconomics and Health, India, there will be 1.67 million stroke cases in India in 2015. A population based survey in India states that, stroke represented 1.2 % of the total deaths in the country, when all ages were included. The proportion of stroke death increased with age, and in the oldest group (> 70 years of age), stroke contributed to 2.4% of all deaths. The gender ratio of death due to stroke was 1.24

As per Dalal, an estimated 5.7 million people died from stroke in 2005 and it is projected that these deaths would rise to million by 2015. According to Linda Fehr's, every 45 seconds someone in the USA has stroke. Stroke continues to be a major health problem for adults in the United States, with a trend showing a slight increase since 1993. Each year Americans suffer more than 750, 000 strokes and an estimated 500, 000 transient ischemic attacks for a total of 1.2 million people.

Up to 85 % of all strokes are of ischemic origin. Atherosclerosis of the arteries, large and small, that supply the brain is the most common cause of ischemic stroke. Atherosclerosis of the proximal aorta is also a source of atherogenic brain emboli. Large artery atherosclerotic infarction occurs when there is an impediment to normal perfusion, usually caused by a severe arterial stenosis or occlusion due to atherosclerosis and coexisting thrombosis or artery to artery embolism.

About 20 % of ischemic strokes are due to cardiogenic embolism, most commonly from atrial fibrillation. A variety of other occlusive disorders may be the .primary cause or variably contribute to stroke pathogenesis. In a Etiologic study of ischemic stroke from the southeast Asia, the most common risk factors observed were hyperlipedimia (53.1%), smoking (49.8%), hypertension (45.8%), and a family history of stroke (29.3%).

Stroke can affect physically (weakness, paralysis, movement limitations, pain, fatigue, sleep problems), emotionally (fluctuating emotions, anxiety, depression), and mentally (thinking, talking and memory difficulties. The goal for collaborative care during the acute phase are preserving life, preventing further damage, and reducing disability.

Treatment protocols for these patients are used to limit the size of the infarct, prevent complications, and prevent extension or recurrences. Treatment varies from drug therapy, surgery, complementary therapies and rehabilitation. According to the American stroke Association (ASA) and the brain Attack coalition (BAC), specialized stroke centers improve outcomes. After the stroke patient has stabilized for 12 to 24 hours, collaborative care shifts from preserving life to lessening disability and attaining optimal functioning.

According to Lewis, among the survivors, 50% to 70% will be functionally independent, and 15% to 30% will live with permanent disability. Twenty percent will require long – term care after 3 months. R.N. Ranjen, a senior consultant of neurology at the Apollo hospital, published in neurology journal that stroke is the most common cause of disability with more than 70 percent of stroke survivors remaining vocationally impaired and more than 30 percent requiring assistance with activities of daily living. Common long- term disabilities include hemi paresis, inability to walk, complete or partial dependence in activities of daily living (ADL), aphasia, and depression and or anxiety.

In addition to the physical, cognitive and emotional impact of stroke among the survivors and their families, it also has an enormous financial impact. In 2005, it resulted in nearly 57 billion dollars in both direct and indirect costs (CDC, 2008).

More over prevalence of anxiety following stroke is relatively high and long lasting. According to starkestein et al., Castillo et al., and Astrom**,** 24-27% of stroke patient suffered from severe anxiety in the acute stage, and the condition can lost for more than three years.

Complications and early deterioration may be associated with stroke treatment. Careful monitoring is needed to quickly identify and rapidly respond to complications. According to Dr.Moodie, Shoulder pain is one common complication that may impede the process of rehabilitation as it can interfere with self care, balance, transfers of patients and ambulation; in addition, greater anxiety and frustration can further lead to failure to respond to rehabilitation. As per a prospective population based study, almost one third of the 327 patients developed shoulder pain after stroke onset, a majority with moderate - severe pain. Shoulder pain restricts patients' daily life after stroke.

According to Newbeck, the conventional treatment for anxiety and shoulder pain in stroke patients range from medication to psychological support, and can offer some degree of relief under certain circumstance.

1.1 NEED FOR STUDY

Stroke is a major public health problem. The yearly global incidence of stroke is approximately 15 million (world health organization 2008). Stroke is the third leading cause of death in the United States. Over 143,579 people die each year from stroke in the United States. Each year, about 795,000 people suffer a stroke. About 600,000 of these are first attacks, and 185,000 are recurrent attacks.

In 2008, stroke accounts for 7% of all deaths -15,409 Canadians. Every 7 minutes a Canadians dies of stroke or cardiovascular disease.

Stroke is Australia's second greatest killer disease and a leading cause of disability .In 2010, Australians will suffer around 60,000 new and recurrent strokes. That is one stroke in every 10 minutes.

In India, the prevalence of stroke is estimated as, 18,012,222. Recent studies showed that the age-adjusted annual incidence rate of stroke was 105/100,000 in the urban community of Kolkata and 262/100,000 in a rural community of Bengal. In Kerala the annual incidence rate of stroke is 180/100,000 population.

In Karnataka, the prevalence rate per 100,000 populations is 150. In Bangalore, the incidence rate of stroke in urban and rural population is 2009-102/100,000.

Stroke is also the most common neurological condition causing long – term disability and has enormous emotional and socioeconomic consequences in patients, their families and the health services. The net lifetime stroke – related costs in patients over the age of 65 with a first ischemic stroke are estimated at $62,000 ($45,000 direct costs plus $ 17,000 indirect costs). The younger patients (those less than 65 years) are even greater at $198,000 per year ($65,000 direct costs plus $133,000 indirect costs). The approximate annual cost in the United States for ischemic stroke care is over $71.8 billion (Matchar and samsa 2000).

The burden of stroke not only stopped with treatment but also with rehabilitation. It is of vital importance to initiate rehabilitation for stroke to reduce the impact of disability caused by stroke.

Stroke rehabilitation begins at the time of stroke to prevent complications and restore function. Early rehabilitation seems to be highly advantageous, and therefore it is recommended that the rehabilitation staff to be involved – even in the acute phase of stroke in the stroke unit. The following are the goals of rehabilitation:

- ⇨ Prevent complications
- ⇨ Improve function
- ⇨ Achieve maximal self – sufficiency
- ⇨ Improve quality of life
- ⇨ Control risk factors
- ⇨ Modify social and vocational environment

Rehabilitation for stroke patients typically involves physical therapy, occupational therapies and non traditional therapies or complementary therapies.

Among all of these therapies, massage seems to be simple and cost effective. More over massage is one of the most common complementary therapies in nursing practice. DR. Beck documented that massage therapy has been used throughout the world for thousands of years, and that touching stroking and gentle massage can be soothing and enjoyable experience.

Farrow examined the physical effects of massage & found that it relieved pain as a result of muscle relaxation and the release of enkephalins.

Dunn reported that patients received massage in an intensive care unit expressed an improvement in mood, body image, self esteem and perceived levels of anxiety.

A Swedish research study investigated the importance of massage for the recovery and well being of stroke patients. They found that the patients who received tactile massage experienced a significantly higher quality of life, showed an improvement in general hygiene and mobility, and used less medication, in particular for pain and depression.

An epidemiological study reported that massage reduces pain and anxiety for patients with stroke.Weinrich and Weinrich, meek, Groer et al. and Richards et al. have shown that the techniques of slow stroke back massage are relatively straightforward and simple. It is easy to administer, non threatening, non – invasive and relatively inexpensive to provide. Slow stroke back massage given in a stroke rehabilitation unit in USA reported that there was a significant decrease in systolic and diastolic blood pressure after SSBM. Verbal reports from subjects indicated that they perceived back massage as relaxing. It was recommended that touch be encouraged in caring for stroke patients.

Massage really benefits people who have had a stroke. It is difficult to deal with the numerous effects of a stroke. Stroke patients can be helped to relax, ease pain, and comfort with the touch of hand. Massage can also help to increase circulation to areas in the body that have been affected by stroke.

Rehabilitation from stroke can often take months or years. Slow stroke back massage play vital role in improving the quality of life of stroke patients by reducing the shoulder pain and anxiety.

As a nursing professional, the investigator concerned with the stroke patients who suffer physically, mentally, socially and economically. Stroke affects not only the patients but also increase the burden of the care giver. Slow stroke back massage is a boon to the stroke patients. It brings immense changes in the body by improving the circulation and strengthening the muscle tone. By all these means, it improves the quality of life by reducing the anxiety and shoulder pain. As per various researches, these two problems hinder the rehabilitation process of stroke patients which is vital for the progression of the condition. Hence I have chosen this as the statement of the problem for the dissertation.

1.2 STATEMENT OF THE PROBLEM:

A STUDY TO ASSESS THE EFFECTIVENESS OF SLOW STROKE BACK MASSAGE ON REDUCTION OF ANXIETY AND SHOULDER PAIN AMONG STROKE PATIENTS IN MEDICAL WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI.

1.3 OBJECTIVES OF THE STUDY:

The objectives of the study were

- To assess the level of anxiety of stroke patients in the experimental and control group before and after intervention.
- To assess the level of shoulder pain of stroke patients in the experimental and control group before and after intervention.
- To compare the mean difference of anxiety and shoulder pain of stroke patients between the experimental and control group.
- To test the association between the mean difference on anxiety and shoulder pain with selected factors among stroke patients in experimental group and control group.

1.4 HYPOTHESES:

H_1 - There will be a significant difference in anxiety and shoulder pain among stroke patients in experimental group before and after intervention.

H_2 – There will be a significant difference in the mean difference in anxiety shoulder pain among stroke patients between the experimental and control group.

1.5 OPERATIONAL DEFINITION:

Effectiveness:

In this study, effectiveness refers to successful positive outcome on anxiety and shoulder pain as a result of slow stroke back massage.

Reduction of anxiety:

In this study, reduction of anxiety refers to worry, problem, uneasiness or tension experienced and self reported by the patients due to stroke which is reduced by the intervention and measured on rating scale.

Slow Stroke Back Massage:

In this study, slow stroke back massage refers to slow long soothing strokes with gentle pressure. The hands move over a 2-inch-wide area on either side of spinous processes and from the crown of the head to the sacral area. The entire massage lasts 10 minutes.

Shoulder pain:

In this study, shoulder pain refers to pain in the shoulder caused as a complication of stroke. Pain can begin as 2 weeks post stroke but typically it occurs within 2-3 months which is reduced by the intervention and measured on the rating scale.

Stroke patients:

In this study, stroke patients refer to patients who experiences sudden loss of brain function caused by a change in the blood flow to the brain. Patients have anxiety and shoulder pain and are able to comprehend and verbalize the problem.

Medical ward:

In this study, medical ward refers to ward where the stroke patients are being admitted and treated.

1.6 ASSUMPTION

1. Stroke patients may experience anxiety and shoulder pain.
2. Slow stroke back massage has an effect on anxiety and shoulder pain on stroke patients.
3. Slow stroke back massage has no adverse effects on stroke patients.

1.7 DELIMITATIONS

- The study period was delimited to one month of data collection period.
- Study was delimited to 60 stroke patients in the medical ward.
- The study was delimited to a selected hospital setting.

1.8 PROJECTED OUTCOME

1. Slow stroke back massage will reduce the anxiety and shoulder pain among stroke patients.
2. The identification of anxiety will help the nurse to take meticulous action in advance and will help for rehabilitation.
3. The findings would provide insight regarding the prevalence of anxiety and shoulder pain among stroke patients and this finding which can help to plan for many education programmes.

CHAPTER II
REVIEW OF LITERATURE

A literature review is a "Critical analysis of a segment of a published body of knowledge through summary, classification and comparison of prior research studies, review of literature, and theoretical articles.''(Wisconsin 2004)

This chapter deals with the information collected in relation to the present study through published and unpublished materials, which provided the foundation to carryout this study.

In the present study the review of literature is organized and presented as follows

2.1. Literature related to anxiety in stroke patients.

2.2. Literature related to shoulder pain in stroke patients.

2.3. Literature related to effectiveness of massage on anxiety and pain

2.1 LITERATURE RELATED TO ANXIETY IN STROKE PATIENTS

Shirley and Lincoln (2007) conducted a longitudinal study at Nottinghamshire hospitals in UK among one hundred stroke patients. The aim of this prospective longitudinal study was to identify factors relating to emotional distress in the first 6 months after stroke in a sample including patients with aphasia. One hundred patients who were in hospital at 1 month after stroke were recruited and assessed on measures of communication impairment (Sheffield Screening Test), personal activities of daily living (Barthel Index), and emotional distress (Visual Analogue Self-Esteem Scale). Demographic and stroke characteristics were recorded. Patients (n=92) were reassessed on the same measures 6 months after stroke, in addition to assessing extended activities of daily living (Nottingham Extended Activities of Daily Living Scale). Multiple linear regression showed that expressive communication impairment and dependence in personal activities of daily living were significant predictors of emotional distress at 1 month after stroke (R^2=24%). Expressive communication impairment, emotional distress at 1 month after stroke, and having a more severe

stroke were significant predictors of emotional distress at 6 months after stroke (R^2=55%). Distress levels were similar at 1 month and 6 months after stroke. Demographic characteristics and side of lesion were unrelated to distress. Expressive communication impairment and level of disability in personal activities of daily living were related to distress. Distress was persistent in the first 6 months after stroke.

Antero.et.al. (2002) from Finland conducted a study at Helsinki University Central Hospital, Helsinki, Finland to detail the frequency and clinical determinants of post stroke generalized anxiety disorders in a large, well-defined stroke cohort. A total of 277 stroke patients aged 55–85 were subjected to a comprehensive psychiatric evaluation between 3 and 4 months after ischemic stroke. The findings of the study were the frequency of any generalized anxiety disorder was 20.6% (n = 57). A discriminant analysis identified that the level of psychosocial functioning is worst in patients with generalized anxiety due to stroke. The study concluded that significant anxiety was common in ischemic stroke patients and might hamper their rehabilitation**.**

Martin.et.al (1999) conducted a study in western general hospital in UK. The aim was to describe the emotional outcomes among 372 surviving stroke patients who had been referred to a hospital and entered into a randomized trial. The stroke family care workers were asked to complete questionnaires at a 6 month follow up. These included measures of emotional distress (general health questionnaire 30 items, hospital anxiety and depression scale) and physical functioning (modified Rankin, Barthel index). A regression analysis was used to identify factors which were independently associated with poor outcomes. 184 (60%) surviving patients scored more than 4 on the GHQ-30, 55 (22%) more than 8 on the HAD anxiety subscale, and 49 (20%) more than 8 on the HAD depression subscale. The results of the study revealed that 26% of stroke patients had anxiety.

Kengo Shimoda and Robert G. Robinson (1998) conducted a study among 142 stroke patients admitted to university of Maryland hospital, Baltimore. Among 142 patients, 110 patients (77.5%) were examined at either 3-month or 6-month follow-up (short term follow–up), and 102 patients (71.8%) were examined at either 12-month or 24-month follow-up (long term follow-up). Patients were lost to follow-up due to mortality (15%) or failure to show up for appointments (10%). Subjects were divided into four groups: control (n=100), generalized anxiety disorder (GAD) only (n=15), major depressive disorder (MDD) only (n=9), and MDD plus GAD (n=18). A 2×2 design was used in this study. There were significant intergroup differences in the frequency of major depression at short-term follow-up (control: 5 of 73; MDD only: 0 of 8; MDD+GAD: 9 of 14; χ^2=24.7, df=2, P<0.0001). Most patients with MDD plus GAD remained depressed at short-term follow-up, whereas none of the MDD-alone patients remained depressed (MDD only vs. MDD+GAD, χ^2=6.3, P=0.02). There were no significant intergroup differences, however, in the persistence of major depression at long-term follow-up (control: 12 of 78; MDD only: 1 of 4; MDD+GAD: 0 of 9; χ^2=3.2, df=2, P>0.1). The findings demonstrated that anxiety disorder following stroke influenced the severity and course of recovery from stroke. Anxiety disorder interacted with depression to influence the degree of impairment in activities of daily living and the course of recovery in social functioning at long-term follow-up. These data suggested that the existence of anxiety disorders plays an important role in the prognosis of patients with post stroke depression.

Schultz S.K. et.al. (1997) from University of Iowa College of Medicine at Iowa City in USA, examined the course of anxiety up to 2 years after stroke in relation to depressive symptoms, impairment in activities of daily living (ADLs), and social functioning. One hundred forty-two patients were evaluated at 3, 6, 12, and 24 months after stroke. Anxiety was associated with greater depression severity at all follow-up visits. Depression severity was associated with impairment in ADLs at follow-up; association of anxiety and impairment in ADLs was present only at the intake visit, with independent effects only for women. Women reported more

symptoms of both anxiety and depression during the 2-year period. Younger patients reported more anxiety symptoms, but there was no difference between age-groups in depressive symptoms. Severity of anxiety was also related to higher depression scores at initial hospitalization, but not in the remainder of the 2-year period. The researcher concluded that anxiety was associated with increased severity of depressive symptoms and greater impairment in function primarily during the acute hospitalization period. Women and younger patients also may be more vulnerable to anxiety after stroke.

Monica Astrom (1995) conducted a three year longitudinal study among 80 stroke patients from Umea University in Sweden to investigate the prevalence and longitudinal course of generalized anxiety disorder (GAD) after stroke. The contributions of lesion characteristics, functional impairment, and psychosocial factors to the development of GAD after stroke were studied. The prevalence of GAD after stroke was 28% in the acute stage, and there was no significant decrease through the 3 years of follow-up. At 1 year, only 23% of the patients with early GAD (0 to 3 months) had recovered; those not recovered at this follow-up had a high risk of a chronic development of the anxiety disorder. Comorbidity with major depression was high and seemed to impair the prognosis of depression. GAD plus depression was associated with left hemispheric lesion, whereas anxiety alone was associated with right hemispheric lesion. Cerebral atrophy was associated with both depression and anxiety disorder late but not early after stroke. Dependence in activities of daily living and reduced social network were associated with GAD at all follow-up periods except at the acute stage. The study concluded that GAD after stroke is a common and long-lasting affliction that interferes substantially with social life and functional recovery.

P.W.Burvill. et. al. (1983) conducted a study to describe the prevalence of anxiety disorder in 294 stroke patients at the Perth Community in Australia a follow-up of these patients at 12 months, were presented. The prevalence of anxiety disorders alone was 5% in men and 19% in women; in community controls, it was 5% in men

and 8% in women. Adopting a non-hierarchic approach to diagnosis gave a prevalence of 12% anxiety in men and 28% anxiety in women. When those who showed evidence of anxiety disorder before stroke were subtracted, the latter prevalence was 9% in men and 20% in women. The study concluded that one-third of the men and half of the women with post-stroke anxiety disorders showed evidence of either depression or an anxiety disorder at the time of the stroke.

2.2 LITERATURE RELATED TO SHOULDER PAIN IN STROKE PATIENTS

Kanakadurga Rao Poduri. (2010) examined whether prompt diagnosis and management of shoulder pain is beneficial in decreasing pain and increasing range of motion and functional recovery among 116 stroke patients in a rehabilitation centre at Rochester rehabilitation unit in USA. Among 116 patients, 48 patients had shoulder pain. The results of the study emphasized the importance of management of shoulder pain for successful rehabilitation of hemiplegic patients.

Kuptniratsaikul. et.al. (2009) performed a multi centre prospective cohort study in 327 stroke patients (134 women, 193 men),at nine rehabilitation centers in Thailand to examine the frequency and types of complications in patients with stroke. The frequency and severity of consequences and complications related to strokes were monitored weekly. In addition, correlations with stroke-related complications were analyzed.

At least one complication after a stroke was found in 232 (71.0%) patients. The mean age was 62 (+/-12) yrs, and 59% were men. Shoulder subluxation was found in 37.3% with mild to moderate degree. Limb spasticity was presented in 41.6%, and almost all were a severity grade of less than 3 on the Modified Ashworth Scale. The common complications found in the study were musculoskeletal pain (32.4%), depression (13.8%), and anxiety (5.8%). Time since onset of stroke > or = 1 mo (adjusted odds ratio [OR] = 2.12; 95% confidence interval [CI] = 1.07-4.17), length of stay > 21 days (adjusted OR = 2.36; 95% CI = 1.26-4.43), and anxiety score

at admission > or = 11 (adjusted OR = 6.87; 95% CI = 2.45-19.29) were statistically associated with stroke-related complications. The study revealed that complications like shoulder pain and limb spasticity were common among patients with stroke who had been hospitalized longer, during inpatient rehabilitation and among those who had high anxiety scores.

Klit. et. al. (2007) conducted a population – based study using follow – up design in Danish research centre, Denmark to investigate chronic pain(chronic headache, shoulder pain, pain from increased muscle stiffness, and other types of novel pain) following stroke among 529 stroke patients. A randomly selected sex- and age-matched reference group from the same catchment area received a similar questionnaire about development of new types of chronic pain in the same time period. A total of 608 stroke patients and 519 reference subjects were included in the study. Development of novel pain was reported by 39.0% of stroke patients and 28.9% of reference subjects (OR 1.57, CI 1.21-2.04), and was associated with low age and depression in a multivariate model. Daily intake of pain medication for novel pain was reported by 15.3% and 9.4% of the stroke and reference population, respectively. Novel headache, shoulder pain, pain from increased muscle stiffness, and other types of novel pain were more common in stroke patients, whereas joint pain was equally common in the two groups. The study concluded that development of chronic pain especially shoulders pain and pain from muscle stiffness is more common in stroke patients compared with sex- and age-matched reference subjects. Evaluation of post-stroke pain should be part of stroke follow-up.

Ingrid.et.al. (2006) conducted a prospective population – based study to find prevalence, predictors, and outcome of shoulder pain in stroke patients at Lund university hospital in Sweden. During a 1-year period, 416 first-ever stroke patients were included in the population-based Lund Stroke Register. After 4 months, 327 patients were followed up and 1 year later, the surviving 305 patients were followed up again. General status (National Institutes of Health Stroke Scale score) was

registered at stroke onset. Shoulder pain intensity (visual analog scale, score 0 to 30=no–mild and 40 to 100=moderate–severe pain); arm motor function; restricted dressing and/or ambulating; and functional status (Barthel Index) were registered at both follow ups.

The study demonstrated that shoulder pain onset within 4 months after stroke was reported by 71 patients (22%). Among them, 79% had moderate–severe pain. Lost or impaired arm motor function and high National Institutes of Health Stroke Scale score were predictors of shoulder pain. Shoulder pain restricted daily life often or constantly when dressing for 51%/31% and when ambulating for 29%/13% of the patients at 4 and 16 months, respectively. Almost one third of the 327 patients developed shoulder pain after stroke onset, a majority with moderate– severe pain. The results suggested that shoulder pain restricts patients' daily life after stroke.

Val Morrison. et.al. (2005) conducted a study in university of Dunkey, a research institute in UK, to examine presence of anxiety and depression up to 3 years after stroke. 101 stroke patients were assessed on six occasions: on hospital admission, 10–20 days following admission, 1 and 6 months following discharge, and 1 and 3 years post stroke. Analysis of the study showed that anxiety remained stable over 3 years post stroke and was common among female gender.

Dr.Dieter.et.al. (2004) conducted a prospective clinical trial among 132 stroke patients in USA. Shoulder-hand syndrome developed in 36 (27%) of 132 hemiplegic patients in a prospective study. Subluxation, paresis of the shoulder girdle, moderate spasticity, and deficits in confrontation visual field testing were the major risk factors. Shoulder joint capsules taken at autopsy of 7 patients showed signs of previous trauma of the affected shoulder. In the second part of this study on another 86 patients, early awareness of potential injuries to shoulder joint structures reduced the frequency of shoulder-hand syndrome from 27 to 8%. These clinical findings suggested that shoulder-hand syndrome in hemiplegia is initiated by peripheral

lesions. In the majority of stroke patients, this clinical phenomenon seems to be preventable by avoiding shoulder trauma.

Giles E.et.al. (2002) conducted a prospective study among 123 stroke patients from a consecutive cohort of 205 patients presenting with stroke in Walton hospital in UK. This study described the incidence of post stroke shoulder pain prospectively, in an unselected stroke population in the first 6 months after stroke and identifies risk factors for developing pain. This cohort, with a mean age of 70.6 years, was examined at 2 weeks, 2, 4, and 6 months. Patients were assessed by interview, full rheumatological and neurological examination in 14 days of post stroke for a history of shoulder pain according to predetermined criteria. In addition, Barthel Index had score and pain scores were also recorded. 52 (40%) patients developed shoulder pain on the same side of their stroke. There was a strong association between pain and abnormal shoulder joint examination, ipsilateral sensory abnormalities and arm weakness. There was a statistically significant association with ipsilateral sensory impairment ($p<0.005$), abnormal rheumatological examination ($p<0.001$) and depression score ($p<0.005$).The study concluded that post stroke shoulder pain is more common than previously realized and in addition to abnormal shoulder joint examination may also be associated with upper limb sensory impairment.

2.3 LITERATURE RELATED TO EFFECTIVENESS OF SLOW STROKE BACK MASSAGE ON PAIN AND ANXIETY:

Funda.et.al (2010) examined the effects of relaxation techniques and back massage on postoperative pain, anxiety, and vital signs on postoperative days 1-3 in patients who had undergone total hip or knee arthroplasty (THA, TKA) in Turkey. Sixty patients having a THA or TKA were randomly assigned to either an experimental group or a control group. The McGill Pain Questionnaire Short Form (MPQ-SF) and State Anxiety Inventory (SAI) were used to measure pain and anxiety, respectively. Vital signs, including blood pressure (systolic and diastolic), pulse, and

respiratory rate, were also obtained. Statistically significant differences in pain intensity ($F = 14.50$; $p = .000$), anxiety level ($F = 19.13$; $p = .000$), and vital signs ($F = 169.61, 9.14, 14.23, 65.64$; $p = .000$) measured over time were found between the experimental and the control group. Results of this research provided evidence to support the use of relaxation techniques and back massage at bed rest times of patients to decrease pain and anxiety. The interventions helped them to forget about their pain for a while and improved their anxiety state.

Mina Jouzi. (2009) conducted a quasi experimental study on the assessment of the effect of massage therapy on 50 stroke patients in Iran. This quasi-experimental study with two groups, two steps and pre- post design was done on 50 patients with CVA (cerebrovascular accident). Sampling was done with convenience method and patients were divided randomly to two groups. Including criteria documented were CVA, the ability of speaking, complete consciousness, one week hospitalization period and having the motivation for entering in this study. In massage group, relatives to patient should massage the patient body 7 times per day. Control group received only the routine management. Blood pressure and Cattle test for anxiety were evaluated before and the end of study. In massage group, mean blood pressure had been significantly decreased at the end of study ($p<0.05$). Anxiety score in the massage group had been decreased after study. Results showed the positive effect of massage on decreasing blood pressure and anxiety level.

Ebnem cinhar. et.al. (2009) conducted an experimental study to investigate the effects of back massage on vital signs and anxiety of elderly staying in rest home in Turkey between 2006 and 2010. The research data were collected using “Elderly Introduction Form” and “the State-Trait Anxiety Inventory”. Back massage was applied to the older people at their beds between 18-20 pm three days long for 10 minutes by the researcher. The findings of the study were, mean age of the older people in this research was 73.07 year (Range: 62-85 years), 61.9% were female, 66.7% were widowed, 47.6% graduated from elementary school. The findings of the

study determined that, other than body temperature, there was a statistically significant decrease in the vital signs right after the back massage, 15-minute and 30-minute afterwards measurements ($p<0.05$). There was also a statistically significant decrease in level of anxiety after the back massage ($p<0.05$).

Brent.A.et.al.(2009) conducted a quasi experimental study on the effectiveness of slow stroke back massage therapy on pain, anxiety, and tension among 24 cardiac patients after cardiac surgery at rehabilitation centre, southeastern North Carolina, USA.The samples were selected using convenience sampling technique. Huckstat Touch instrument was used to assess physiological responses such as blood pressure, heart rate and respiratory rate and psychological responses to touch as well as the recipients' perceptions of touch. The study used Patients were randomized to receive a slow stroke back massage for 30 minutes for 3 days or to have quiet relaxation time (control). Vital signs were assessed following the intervention. There was a statically significant decrease in mean heart rate from 77.47 to 76.4 at $p < .05$) from day 1 to day 3 and respiratory rate decreased from 18 to 17 at $p< .05$ for the experimental group. But the mean diastolic blood pressure shown changes only during 2^{nd} and 3^{rd} day (76 to 73 at $p <.05$). Patients in the experimental group were highly satisfied with the intervention, and no major barriers to implementing massage therapy were identified.

Jean.kutner. et.al. (2008) conducted a randomized clinical trial among the population – based palliative care Research Network in Florida to evaluate the efficacy of massage for decreasing pain and symptom of distress and improving quality of life among patients with advanced cancer. Among 380 adults with advanced cancer who were experiencing moderate-to-severe pain; 90% were enrolled in the study. Six 30-minute massage or simple-touch sessions over 2 weeks. Immediate outcomes were obtained just before and after each treatment session. Sustained outcomes were obtained at baseline and weekly for 3 weeks. 298 persons were included in the immediate outcome analysis and 348 in the sustained outcome

analysis. A total of 82 persons did not receive any allocated study treatments (37 massage patients, 45 control participants).

Both groups demonstrated immediate improvement in pain (massage, −1.87 points [95% CI, −2.07 to −1.67 points]; control, −0.97 point [CI, −1.18 to −0.76 points]) and mood (massage, 1.58 points [CI, 1.40 to 1.76 points]; control, 0.97 point [CI, 0.78 to 1.16 points]). Massage was superior for both immediate pain and mood (mean difference, 0.90 and 0.61 points, respectively; $P < 0.001$). No between-group mean differences occurred over time in sustained pain (BPI mean pain, 0.07 point [CI, −0.23 to 0.37 points]; BPI worst pain, −0.14 point [CI, −0.59 to 0.31 points]), quality of life (McGill Quality of Life Questionnaire overall), 0.08 point [CI, −0.37 to 0.53 points]), symptom distress (Memorial Symptom Assessment Scale global distress index, −0.002 point [CI, −0.12 to 0.12 points]), or analgesic medication use (parenteral morphine equivalents, −0.10 mg/d [CI, −0.25 to 0.05 mg/d]). The results of the study demonstrated that massages have immediately beneficial effects on pain and mood among patients with advanced cancer.

Allisonet.al (2007) conducted a randomized control trial on the effectiveness of slow stroke back massage on acute Postoperative Pain among the 605 patients at Department of Veteran's Affairs medical centers in Michigan and Indiana .The patients received routine care; individualized attention from a massage therapist for 20 minutes but no massage; or a 20-minute effleurage back massage each evening by a massage therapist. All patients received the usual access to pharmacological therapies. The massage group had significantly greater improvements in all 3 variables (pain intensity, pain unpleasantness, and anxiety measurements) .The study concluded that massage affects a patients' perception of pain as well as anxiety and therefore may be a safer and potent pain reliever for some patients.

Bazrafzan. (2007) conducted a study to assess the effect of slow stroke back massages on anxiety level among primigravid women in two clinics in Shiraz. In

this clinical trial, 80 primigravid women aged 15-35 who were in the 3rd trimester of pregnancy were enrolled in the study. The participants were randomly allocated in the intervention and control groups. The intervention group received slow stroke back massage for 10 minutes in three consecutive mornings. Anxiety level was measured before and immediately after the intervention in both groups. Data were gathered using the state anxiety Spielberger questionnaire. The means of the anxiety level were 51±6.6 and 49.90±6.6 at baseline in the intervention and control groups, respectively (P=0.460). After the intervention, the means of anxiety level were 48.18±6.52 and 51.50±7.39 in the intervention and control groups, respectively (p=0.036) According to the results, slow stroke back massage seemed to be an effective nursing intervention for anxiety relief in primigravid women. It provides an opportunity for nurses to offer individualized and holistic patient care.

Staffs of nursing department (2004) at the Hong Kong polytechnic university conducted a experimental study in Wong Chunk Hang hospital among 102 elderly stroke patients to assess the effectiveness of slow stroke back massage on anxiety and shoulder pain. The study compared the scores of self reported pain, (Visual analog scale) anxiety (state trait anxiety scale), blood pressure and heart rate of two groups of patients before and immediately after, and three days after the cessation of intervention. The massage group received ten minutes of slow – stroke back massage for seven consecutive nights. Subjects in the control group received standard care. In addition, the patients in experimental group were asked to comment on their perceptions of slow stroke back massage (SSBM) intervention by completing a questionnaire. Mean anxiety and shoulder pain of experimental group reduced from 42.8 to 28.6 and 44.2 to 29.6 at $p<.05$ respectively. Mean anxiety and shoulder pain of control group remained from 40.7 to 40.9 and 44.3 to 44.4 at $p<.05$ respectively. Results of this study showed that 10 minutes of nightly slow stroke back massage had significantly reduced pain, anxiety, blood pressure and heart rate for subjects in experimental group as compared to subjects in the control group. In addition to the

subjective measures, all physiological measures changed positively, indicating relaxation.

A Swedish study investigated the importance the importance of massage for the recovery and well being of stroke patients. It was a smaller – scale randomized controlled study carried out at a Swedish geriatric clinic from 1998 t0 1999. The patient who received tactile massage experienced a significantly higher quality of life, and used less medication, in particular for pain and depression.

Karen. et.al *(2005)* conducted a quasi experimental prêt test/ post test control group study to determine the effectiveness of on – site chair massage therapy program in reducing the anxiety levels of employees in Bowling Green University. Eighteen subjects participated in the chair massage therapy program for 6 weeks. Fifteen control group subjects participated in break therapy. For 15minutes weekly, subjects either received a massage or were allowed to take a break, depending on their assignment to either the treatment or control condition. Participants' stress levels were measured with the state - trait Anxiety inventory self assessment questionnaire. This measure was administered twice during pretest, post test and delayed post test to achieve stable measures. Significant reduction in anxiety levels were found for the massage group.

2.4 CONCEPTUAL FRAME WORK

Conceptual framework refers to interrelated concepts or abstractions that are assembled together in some rational scheme by virtue of their relevance to a common theme (Polit and Hunger- 1997).

Theoretical model for this study was derived from Callista Roy's Adaptation theory (1996). Roy Employs a feedback cycle of input, throughout and output.

- ✯ Input is identified as stimuli, which can come from the environment or from within a person.
- ✯ Stimuli are classified as focal (immediately confronting the person), contextual (all other stimuli, that are present) or residual (non specific such as cultural belief's or attitudes about illness). Input also includes a person's adaptation level (the range of stimuli to which a person can adapt easily.
- ✯ Through put make use of a person's processes and effectors.
- ✯ "Process" refers to the control mechanisms that a person uses as an adaptive system".
- ✯ "Effectors" refers to the physiological function, self concept, and role function involved in adaptation.

In the adaptive system, the term "system" is defined as self parts connected to function as a whole for some purpose and it so by virtue of the interdependence of its parts. This has two major internal control process called "regulator" and "cognator".

Regulator sub system consist of internal process including chemical, neutral and endocrine – transmit the stimuli, causing output- physiological response, cognator sub system regulates self concepts, role function and inter dependence.

Output is the outcome of the system; when the system is a person, out put refers to the person's behavior. In Roy's system, output is categorized as adaptive responses (Those that promote a person's integrity) or ineffective responses (those

that do not promote goal achievement) these responses provide feedback for the system.

The modified Roy's adaptation model in this study was explained as follows:
INPUT: The focal stimulus was disability and dependence. The contextual stimuli were age, sex, religion, education, occupation, income, marital status and type of family.

THROUGHPUT: In the process, the experimental and control group perceived anxiety and shoulder pain. To identify the response of effectors, pretest was done using modified speilberger anxiety scale and numerical rating pain scale to assess the anxiety and pain of both experimental and control group.

The experimental group was subjected to slow stroke back massage. The control group had given routine hospital care. Administration of slow stroke back massage in experimental group and following the hospital routine for control group established different response to anxiety and shoulder pain.

OUTPUT: The changes were assessed in the post test. The experimental group showed adaptation through reduction of anxiety and shoulder pain. Maladaptation in the control group caused no change in the level of anxiety and shoulder pain.
Figure – 1 highlights the conceptual framework based on modified Roy's adaptation model.

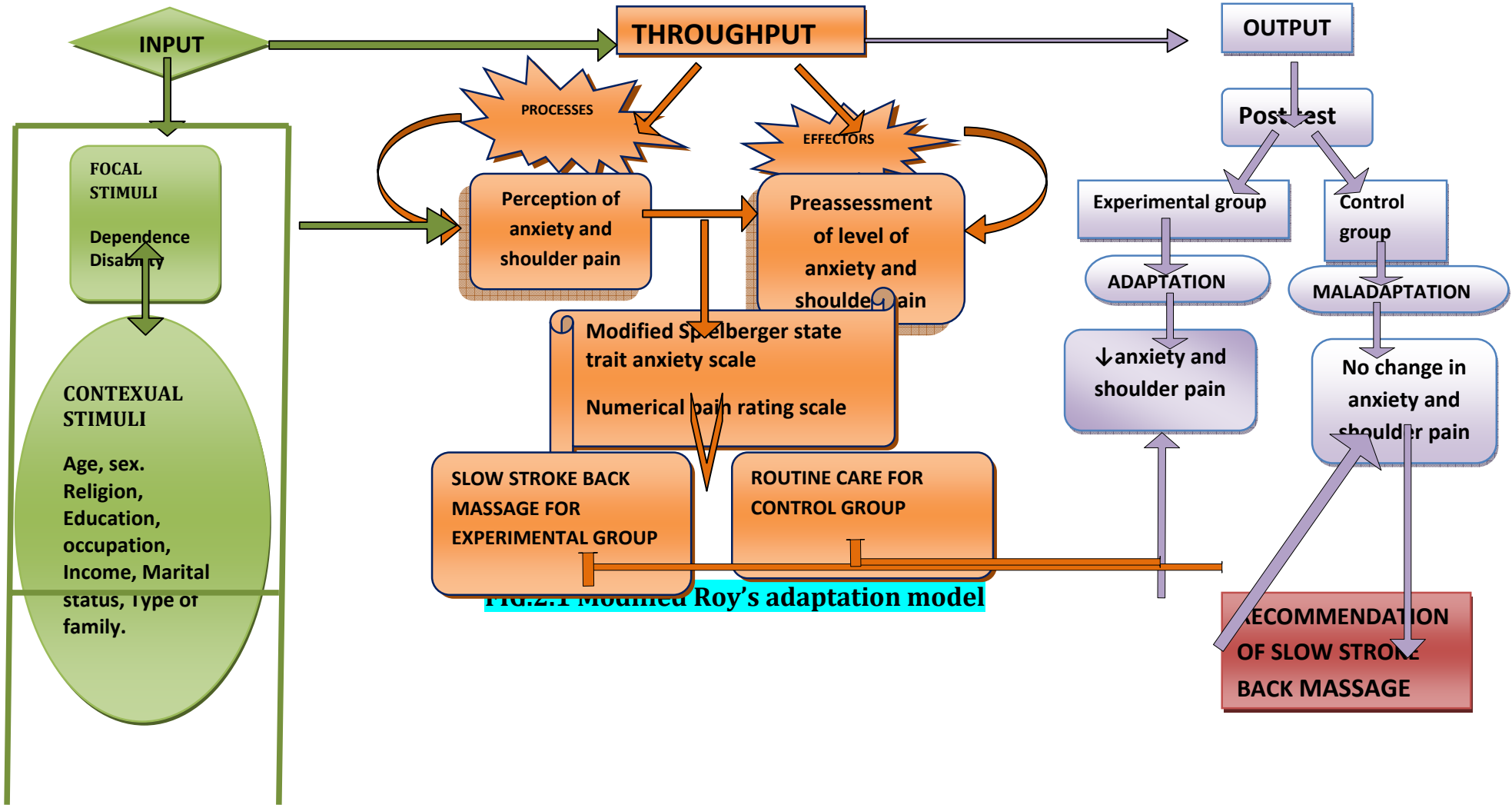

FIG.2.1 Modified Roy's adaptation model

CHAPTER III
METHODOLOGY

This chapter deals with description of the different steps undertaken by the investigator for the study. It includes the research design, variables, setting, Population, sample size, sample technique, sample criteria, description of tool, content validity, pilot study, data collection procedure and plan for data collection procedure and plan for data analysis and ethical consideration.

3.1 RESEARCH APPROACH

A research approach tells the researcher from where the data is to be collected, what to collect, how to collect and analyses, then it also suggests the possible conclusion and helps the researchers in answering specific research in a most accurate and efficient way possible. (Rose Grippa Gotehery Lucerol, 1994).

Quantitative approach is used in the study.

3.2 RESEARCH DESIGN

Quasi experimental design is a research design in which researcher initiates an experimental treatment but some characteristics of a true experiment is lacking.(Geri Haber, 2006)

The research design in the study was a Quasi experimental - non equivalent control group pre test post test design. There were two groups, experimental and control group. Samples were selected using purposive sampling technique in the medical ward. The control group was similar to experimental group with regard to selected factors. The experimental group included those patients who were different from control group only with regard to receiving slow stroke back massage. Pretest and post test pain and anxiety score was measured in both experimental and control group. Slow stroke back massage was given to experimental group for 10 minutes at seven consecutive evenings. For control Group, pretest and post test pain and anxiety score was measured at two intervals.

RESEARCH DESIGN NOTATION

E	**O_1**	**X**	**O_2**
C	**O_1**	**-**	**O_2**

Fig 2: Schematic representation of research design notation.

E: Experimental group

C: Control group

X: Slow stroke back massage.

- : No intervention

O_1: Pre test

O_2: Post test

3.3 RESEARCH VARIABLE:

Independent Variable:

Slow stroke back massage.

Dependent Variable:

Anxiety of patients with stroke and shoulder pain of patients with stroke.

Demographic variable:

Age, Sex, religion, educational status, occupation, income, marital status, type of family.

3.4 SETTING OF THE STUDY:

Setting is the physical location and condition in which data collection takes place (Polit and Hungler, 1999).

It is essential for the investigator to consider the setting in which the experiment is conducted. This study was conducted in the Medical ward, Government

Rajaji Hospital, Madurai. The government Rajaji hospital is a 2218 Bedded multi-specialty hospital, which is attached with Madurai Medical College, College of Nursing and School of Nursing. It is located in the heart of the Madurai city. It is the largest hospital in the south part of Tamilnadu. It provides tertiary health care services to public, who come from southern districts of Tamilnadu. The average number of stroke patients received in the medical ward is about 20-30 patients per week.

3.5 POPULATION:

Population refers to the entire set of individuals having some common characteristics and it is important to make distinction between target and accessible population.

TARGET POPULATION:

Target population refers to the population that researcher wishes to make Generalization. In this study the target population was the stroke patients.

ACCESSIBLE POPULATION:

The accessible population was stroke patients those who were admitted in Medical ward, Government Rajaji Hospital, Madurai.

3.6 SAMPLE AND SAMPLE SIZE

A sample is a set of element that makes up the population. (Geri Haber, 2006). Stroke patients with anxiety and shoulder pain in the medical ward, Govt. Rajaji hospital, Madurai were selected as samples of the study.

The sample size for this study was arbitrarily decided to be 60.Finally a sample of 30 patients in experimental group and 30 patients in control group were included in the study.

3.7 SAMPLING TECHNIQUE:

Sampling is a process of selecting a portion or subset of the designated population to represent the entire population (Geri Haber, 2006)

In this study the investigator selected the patients admitted in medical ward in government Rajaji hospital by purposive sampling technique.

3.8 CRITERIA FOR SAMPLE SELECTION:

Inclusion criteria:

1. Stroke patients experiencing anxiety and shoulder pain.
2. Both male and female.
3. Able to comprehend verbal instructions and verbalize the problem.
4. Not receiving any types of pain relieving measures.
5. Stroke patients who could understand Tamil.
6. Stroke patients those who are willing to participate in the study

Exclusion criteria:

Stroke patients those who are having

1. History of bradycardia
2. History of hypotension
3. History of spinal disorder
4. History of skin disorder
5. History of malignancy of spinal column.

3.9 DEVELPOMENT AND DESCRIPTION OF TOOL

The investigator prepared and developed an interview schedule as a tool for present study after exploring all sources of information like extensive library Search, internet sources and consultation with experts. Numerical rating pain scale was used to assess the pain. Modified spiel Berger state trait anxiety scale was used to assess the anxiety. Items regarding background factors were developed by the investigator.

DESCRIPTION OF THE TOOL

SECTION – A: PART I:

This deals with the demographic data of stroke patients such as age, sex, religion, education, occupation, income, marital status, type of family.

SECTION – A: PART II:

This deals with the clinical variables such as temperature, pulse, respiration and blood pressure.

SECTION – B

The state trait anxiety inventory scale which was developed by spielberger's et al (1983) was used and modified by the researcher to assess the level of anxiety. It consists of 25 statements which was a self report inventory that focused the subjective feeling on anxiety.

All patients were encouraged to describe their feelings for assessing the state anxiety. The state anxiety consists of 25 statements that evaluate how the respondents felt " right now at that moment " It also might be used to evaluate how they felt at a particular time in the recent past and how they felt in a specific situation that was likely to be encountered in the future or a variety of hypothetical situation.

SECTION – C

A 10 point horizontal Numerical rating pain scale was used to assess the degree of shoulder pain. It is a standardized tool to assess pain. It has been widely used in many of the studies. It is recommended by Agency for Health care policy and Research (AMCPR – 1992)

3.10 SCORING PROCEDURE:

Modified state trait anxiety scale:

The state anxiety consists of 25 statements that evaluate how the respondents felt "right now at that moment" Each state anxiety inventory was given a weighted score of 1 to 4. A rating of 4 for the positive statement 3, 4, 6, 7, 9, 12, 13, 14, 17, 18, 21, 22, 23 indicated the presence of a high level of anxiety. For the reversed statements 1, 2, 5, 8, 10, 11, 15, 16, 19, 24, 25 rating of 4 indicates the absence of anxiety. The score for the state anxiety inventory scale ranged from 25 to 100.

Based on the score from Mean +/- standard deviation formula, the subjects were classified as follows:

Low level of anxiety - 0 to 48

Moderate level of anxiety – 49 to 68

High level of anxiety – 68 to 100

Numerical rating pain scale:

It consists of a straight line (1 to 10) representing the intensity of pain and has verbal description at each end. A person designates a point on the scale corresponding to their pain at the time of assessment.

0	- No pain
1 – 3	-Mild pain
4-6	-Moderate pain
7-10	-Severe pain

3.11. TESTING OF THE TOOL

VALIDITY OF THE TOOL:

Content validity refers to the degree of which the item in an instrument adequately represents the universe of the content (Polit and Hungler, 2006).

The tool developed by the investigator was sent along with the request for validation to five experts including one medical officer and four nursing experts. The experts were requested to check for the relevance, sequence, adequacy of language of the tool. The expert's suggestions were incorporated in the tool. Then the tool was finalized and used for the main study.

RELIABILITY OF THE TOOL:

Reliability refers to the degree of consistency or dependability with which an instrument measures the attribute it is designed to measure (Polit and Hungler, 2006).

The reliability of the tool was established by Split-Half method. The "r" value was 0.6. The score indicates a high correlation and the tool was considered as highly reliable

3.12. PILOT STUDY:

Pilot study refers to a small scale version, or trial run done in preparation for a major study. Pilot study also tests the reliability, practicability, appropriateness and feasibility of the study and the tool (Polit and Hungler, 1999).

Pilot study was done among ten stroke patients from 11.7.2011 to 17.7.2011 after obtaining permission from the authority. The setting was medical ward, government Rajaji hospital Madurai. It helped the researcher to ascertain the feasibility of the designed methodology.

3.13. DATA COLLECTION PROCEDURE

A formal permission was obtained from the Head of the department of medicine. Data collection started from 1.10.2011 to 31.10.2011. The investigator selected stroke patients by purposive sampling technique. The data was collected from the patients who fulfilled the inclusion criteria by interview schedule. Patients were met in the medical ward by the investigator and brief introduction about self and the study was given and the confidentiality of the responses was assured. The interview was conducted in Tamil. Ethical aspects were considered throughout the study.

Experimental group:

A pre test was conducted to assess shoulder pain using numerical rating pain scale and anxiety using modified state trait anxiety scale. Patients in the experimental group were given slow stroke back massage near the side of the bed. The massage intervention was given in the evening for ten minutes for seven consecutive days, in addition to the routine care. On the seventh day, after the massage intervention, the post test was conducted using the numerical rating pain scale and modified state trait anxiety scale.

Control group:

A pre test was conducted to assess shoulder pain using numerical rating pain scale and anxiety using modified state trait anxiety scale. Patients in the control group were not offered the slow stroke back massage intervention. But the routine care was

given. On the seventh day, post test was conducted using the numerical rating pain scale and modified state trait anxiety scale.

Table 1

Description of data collection

DATE	TIME	PROCEDURE	EXPERIMENTAL GROUP	CONTROL GROUP
First week	5pm-9pm	**Day1:** pretest and intervention **Day2toDay6:**Intervention **Day7:**Intervention and post test	8	8
Second week	5pm-9pm	**Day1:** pretest and intervention **Day2 to Day6:**Intervention **Day7:**Intervention and post test	8	8
Third week	5pm-9pm	**Day1:** pretest and intervention **Day2 to Day6:**Intervention **Day7:**Intervention and post test	7	7
Fourth week	5pm-9pm	**Day1:** pretest and intervention **Day2 to Day6:**Intervention **Day7:**Intervention and post test	7	7

INTERVENTION

The procedure of the massage consists of the following steps:

1. The patient should be either seated in a chair leaning over a table on to a pillow or lying in a prone position.
2. Firmly grasp the top of the patient's shoulders with both hands and place the thumbs of each hand just below the base of the skull, making tiny circular movements on the upper neck.
3. Place the palm of one hand at the base of the skull and make a long smooth stroke all the way down the patient's spine to his / her waist. The second hand follows the first at the base of the skull and strokes down the spine as the first hand returns to the base of the skull.

4. Place hands on either side of the neck under the patient's ears and stroke down and over the patient's collarbones with thumbs just over the shoulder blades. Repeat the motions several times.
5. Place the thumb of each hand beside the spine, beginning with the shoulders, and move the thumbs down the spine to the waist. Repeat several times.
6. Finish by placing palms on each side of the patient's neck and make continuous, long sweeping strokes down the neck, across each shoulder, and down the back near the spine. Repeat the entire pattern several times

3.14. DATA ANALYSIS:

The data were edited, coded and entered in Excel sheet. The data were analyzed using descriptive and inferential statistics.. A probability of less than 0.05 was considered to be significant.

The data were analyzed as follows;

1. Background factors of patient and disease related factors in experimental and control group were analyzed using descriptive statistics and chi-square.
2. Data on effectiveness of slow stroke back massage on pain and anxiety before and among the stroke patients in experimental group were analyzed using paired t test.
3. Data to compare the mean difference on pain and anxiety among stroke patients between the experimental and control group were analyzed using independent sample test.
4. Data on association between the mean difference on pain and selected factors among the stroke patients in experimental group were analyzed using Karl Pearson correlation coefficient.

3.15. PROTECTION OF HUMAN RIGHTS:

The study objective, intervention and data collection were approved by the research and ethical committee of the institution. Main study was conducted after obtaining permission from the head of the department of medicine from government Rajaji hospital. Informed consent was obtained from the stroke patients. No routine care was altered or withheld

SCHEMATIC REPRESENTATION OF RESEARCH STUDY

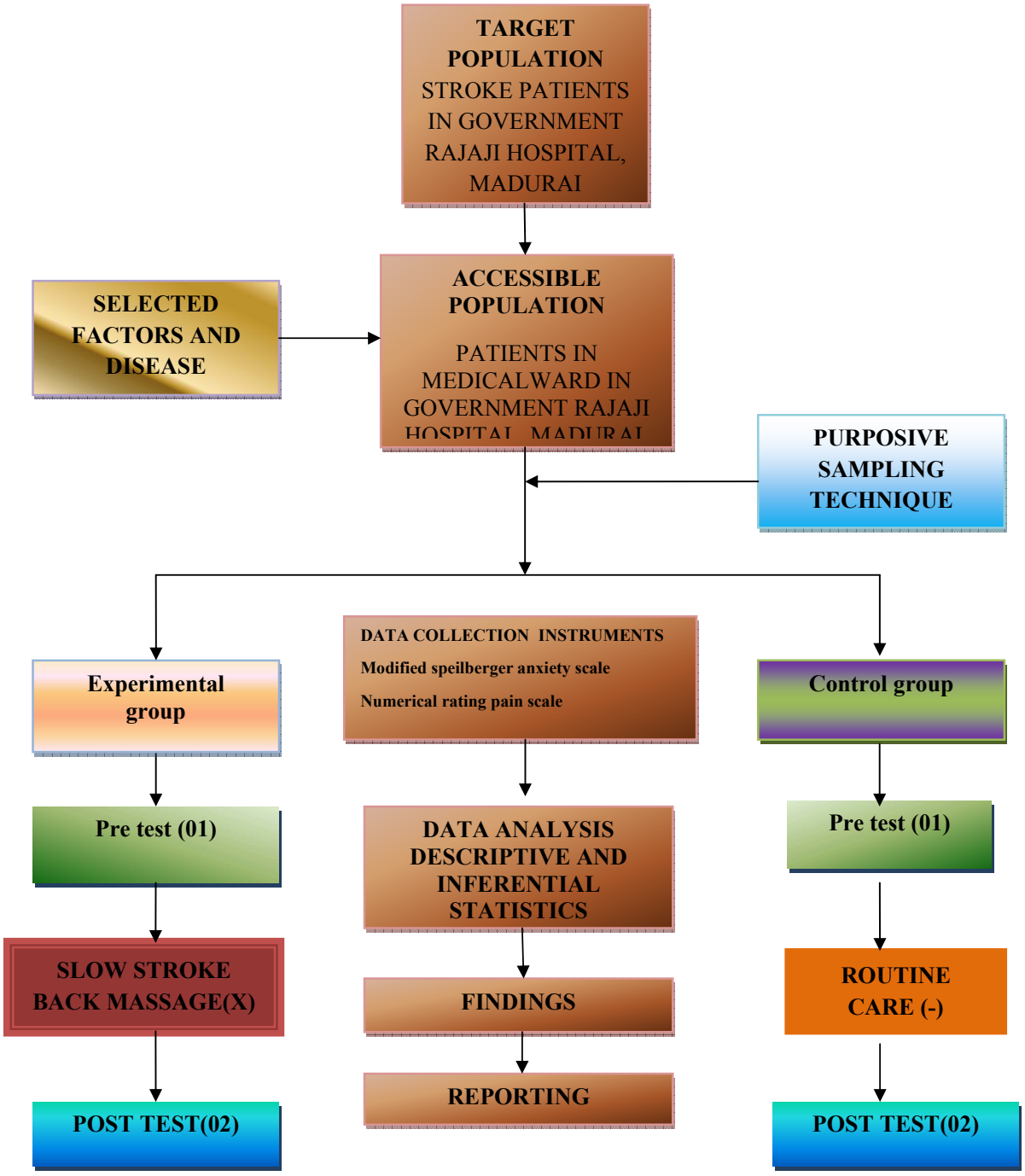

Fig.3 Schematic representation of research study

CHAPTER IV
DATA ANALYSIS AND INTERPRETATION

Copper. K.L (2008) defines data analysis as the "systematic organization and synthesis of research data, and the testing of research hypothesis using those data. Interpretation is the process of making sense of the results of a study and examining their implications."

This chapter deals with the analysis and interpretation of data collected from 60 stroke patients. The data have been analyzed and presented under the following headings**.**

ORGANIZATION OF THE FINDINGS:

The data were coded, tabulated, analyzed and interpreted using descriptive and inferential statistics. The data were presented under the following headings:

Section I: Distribution of demographic characteristics of the sample.

Section II: Assessment on level of anxiety before and after intervention in experimental and control group.

Section III: Assessment on the level of anxiety and shoulder pain before and after intervention in experimental and control groups.

Section IV: Assessment on the level of shoulder pain before and after intervention in experimental and control groups.

Section V: Association between the level of anxiety and shoulder pain with selected demographic variables.

Section VI: Association between the level of anxiety, shoulder pain and selected clinical variables.

4.1 DEMOGRAPHIC DATA PRESENTATION:

The collected demographic data on age, sex, religion, educational qualification, occupation, total monthly income of the family, marital status, and type of family were presented in the form of tables and graph.

SECTION I

Table 2

Frequency and percentage distribution on demographic characteristics of experimental and control group N = 30

Demographic variable	Experimental Group		Control group	
	No: of respondents	Percentage (%)	No: of respondents	Percentage (%)
Age in years				
21 to35	7	23	3	10
36 to 50	4	13	5	17
51 to 65	9	30	11	37
>65years	10	33	11	37
Sex				
Female	5	17	2	7
Male	25	83	28	93
Religion				
Hindu	27	90	29	97
Muslim	3	10	-	-
Christian	-	-	1	3
others	-	-	-	-
Educational qualification				
No formal education	23	77	22	73
Up to middle school level	7	23	6	20
Higher secondary level	-	-	2	7
Diploma Degree	-	-	-	-

Demographic variable	Experimental Group		Control group	
	No: of respondents	Percentage (%)	No: of respondents	Percentage (%)
Occupation	-	-	-	-
Unemployed	14	47	14	47
Govt employee	-	-	-	-
Private	-	-	-	-
Self employee	-	-	-	-
Cooly	16	53	16	53
Total income of the family (per month)				
Rs. < 5000	27	90	30	100
Rs.5001 – 10,000	-	-	-	-
Rs.10,001 - 15,000	3	10	-	-
Rs.>15,000	-	-	-	-
Marital status				
Married	27	90	26	87
Unmarried	-	-	-	-
Spouse not alive	3	10	4	13
Divorced	-	-	-	-
Type of the family				
Nuclear family	5	17	3	10
Joint family	25	83	27	90
Extended family	-	-	-	-
Separated family	-	-	-	-

Table 2 described the distribution of Demographic data on the Stroke patients at Rajaji Hospital, Madurai.

AGE: Age distribution stated that, majority of the patients were above 51 years, where 30% in experimental group and 37% in control group ranged from 51 to 65 years of age and 33% of experimental group and 37% of control group were above 65 years. Remaining 23% and 13% in experimental group were distributed between 21 to 35 years and 36 to 50 years respectively. In the control group, 10% belonged to 20 to 35 years of age and 17% belonged to 36 to 5o years of age.

SEX: Among the thirty, majority of the patients belonged to male gender.83% from experimental group and 93 % in control group were male and 17% from experimental group and 7% in control group were female.

RELIGION: Based on the religion, majority of the inmates were Hindu (90% from experimental group and 97% in control group), 3% in control group alone were Christian while 10% in experimental group alone were Muslim.

EDUCATION: Educational status of the stroke patients discussed that about 75% in both the groups did not have a formal education while 23% from experimental group and 20 % in control group had middle school education and 7% from the control group alone had higher secondary level of education.

OCCUPATION: Data on occupation of the patient revealed that 53% equally in both the groups were working as cooly, while 47% equally in both the groups were unemployed.

INCOME: Greater number of patients in experimental group (90%) and cent percent in control group earned less than Rs.5000, while 10% in experimental group alone were earning between Rs.10001 to Rs. 15000.

MARITAL STATUS: When considering the marital status, 90% from experimental group and 87% in control group were married while 10% from experimental group and 17% in control group spouses were not alive.

TYPE OF FAMILY: Around 83% from experimental group and 90% in control group remained in joint family while the others dwelled in a nuclear family system (17% in experimental group and 10% in control group).

Distribution on age among experimental and control group.

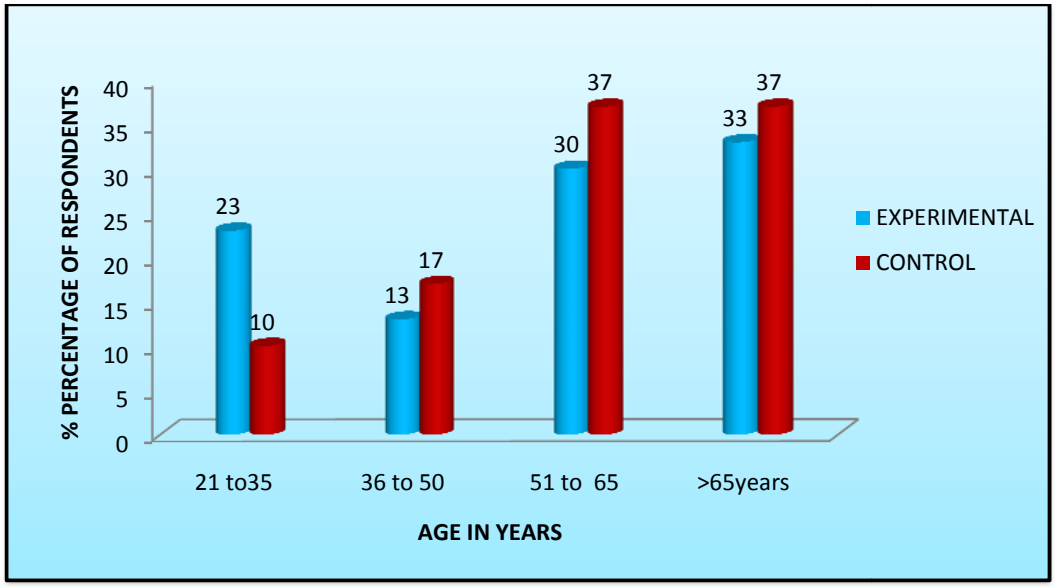

Figure 4: The clustered cylindrical diagram showing the percentage distribution of experimental and control group according to age.

Majority of subjects were above 51 years, where 30% in experimental group and 37% in control group ranged from 51 to 65 years of age and 33% of experimental group and 37% of control group were above 65 years.

Distribution on sex among experimental and control group

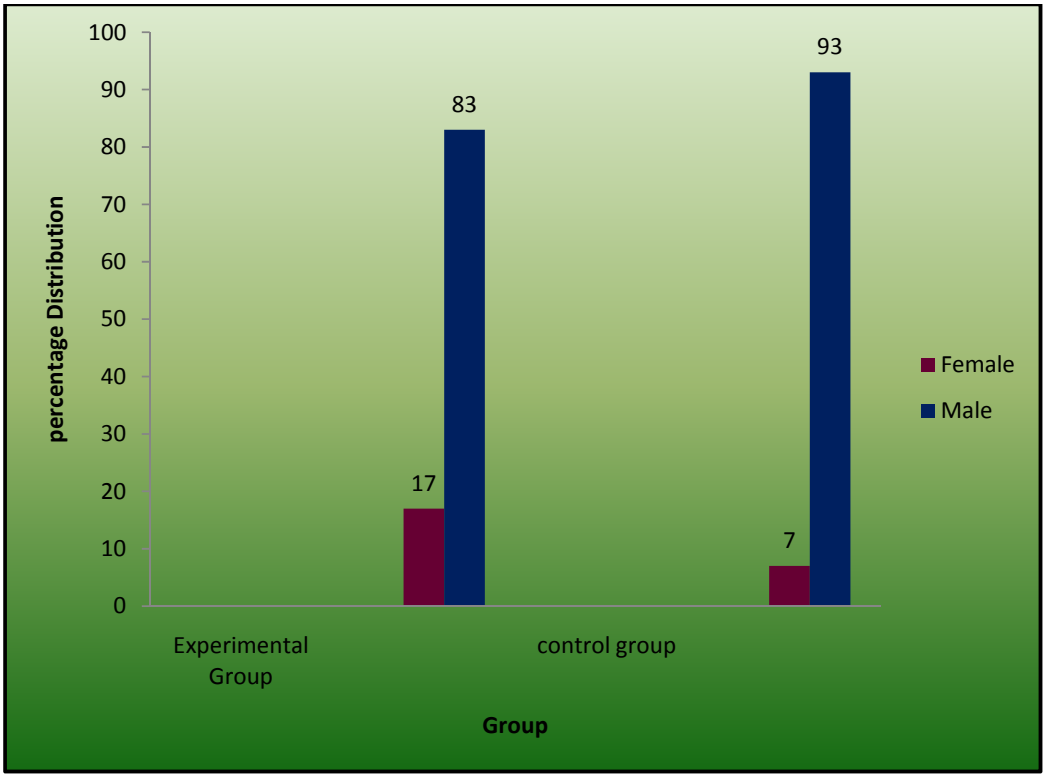

Figure 5: The clustered column showing the percentage distribution of experimental and control group according to gender.

Among the thirty, majority of the patients belonged to male gender.83% from experimental group and 93 % in control group were male.

Distribution on Religion among experimental and control group

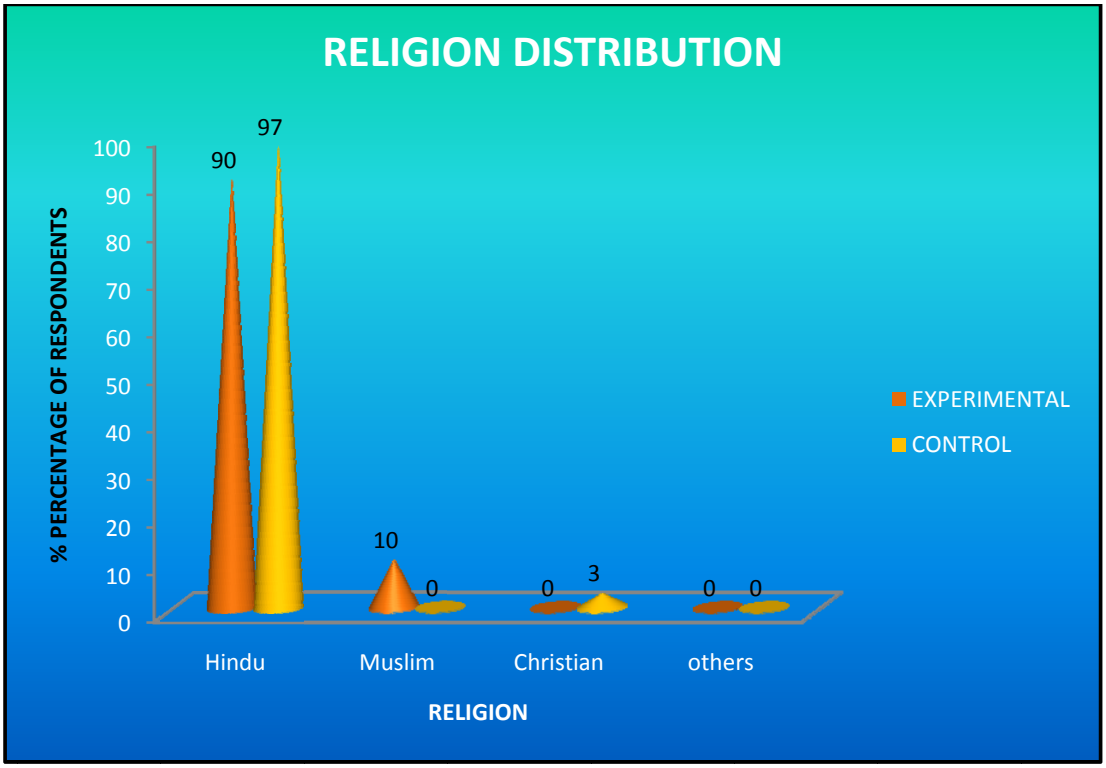

Figure 6: The 3-D cone describes the percentage distribution of experimental and control group.

Majority of the inmates belonged to Hindu religion, 90% from experimental group and 97% in control group.

Distribution on Educational Status among experimental and control group.

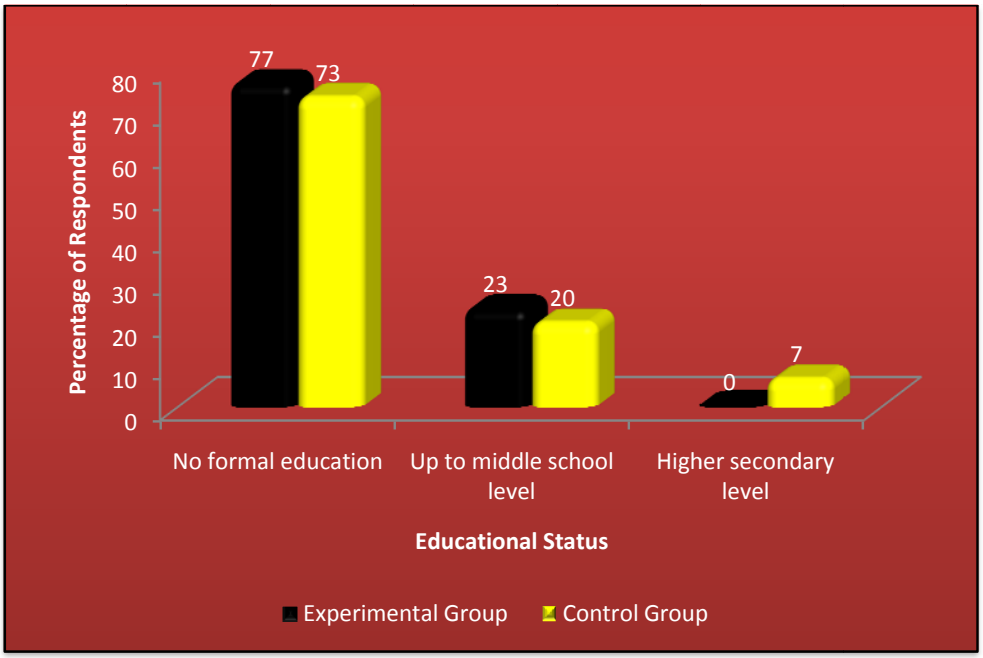

Figure 7: The clustered column depicts the educational; distribution of experimental and control group.

Educational status of the stroke patients discussed that about 75% in both the groups did not have a formal education.

Distribution on Occupational Status among experimental and control group

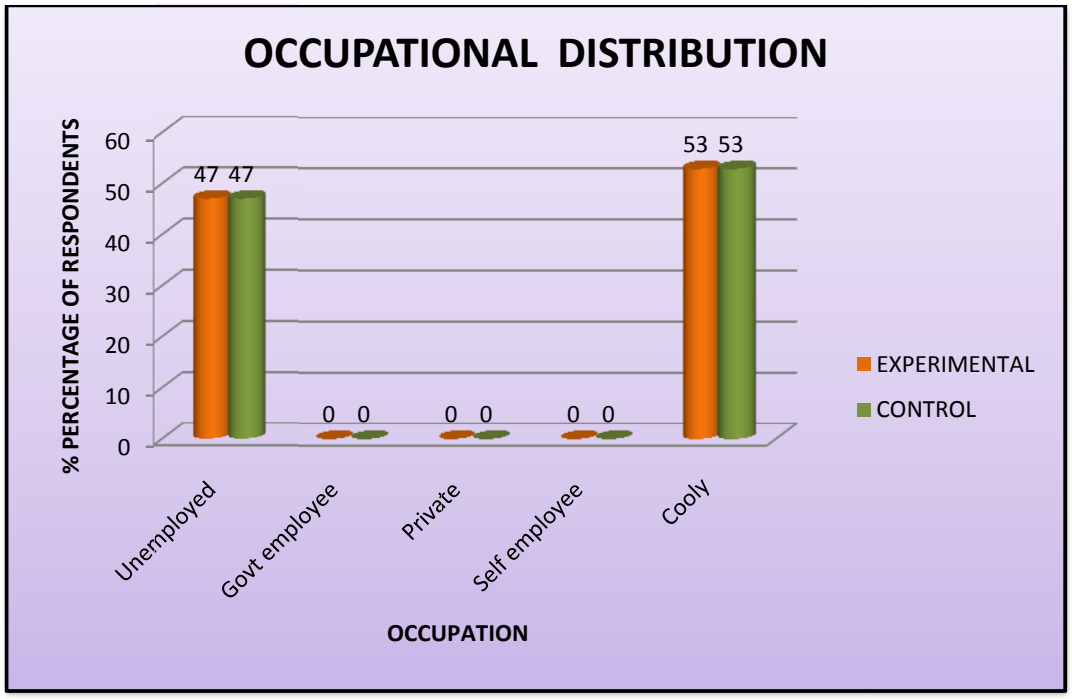

Figure 8: The clustered cylinder demonstrates the occupational distribution of experimental and control group.

Data on occupation of the patient revealed that 53% equally in both the groups were working as cooly.

Distribution on Economic Status among experimental and control group.

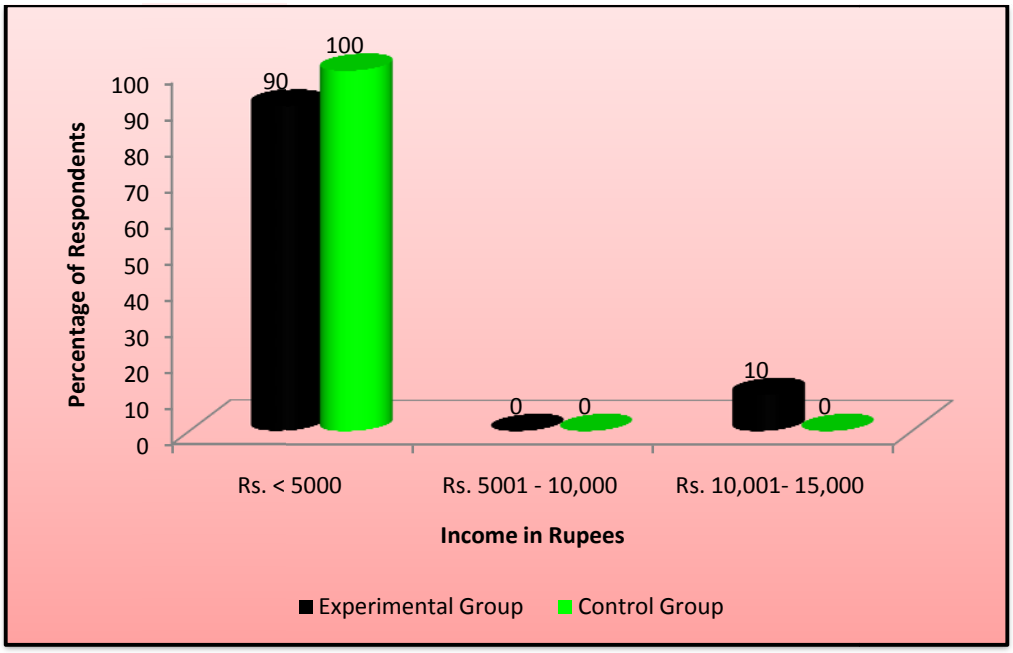

Figure 9: The clustered cylinder displays the economic distribution of experimental group and control group.

Greater number of patients in experimental group (90%) and cent percent in control group earned less than Rs.5000.

Distribution on Marital Status among experimental and control group.

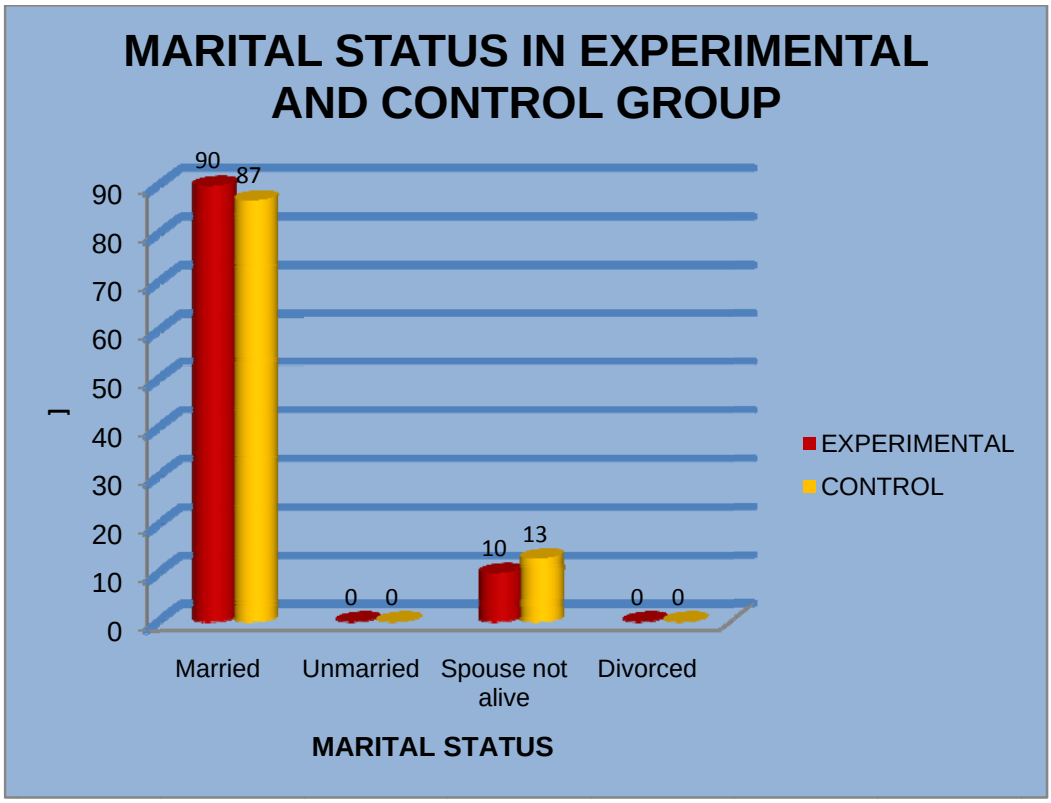

Figure 10: The clustered column reveals the distribution of marital status among experimental and control group.

When considering the marital status, 90% from experimental group and 87% in control group were married.

Distribution on Type of Family among experimental and control group.

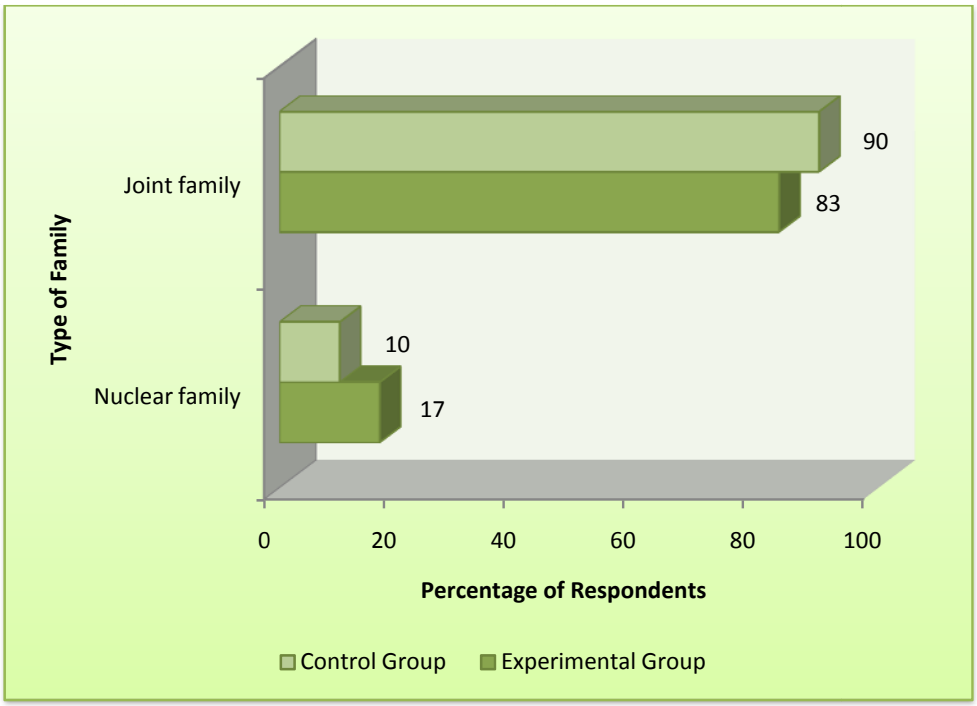

Figure 11: The histogram confess the distribution of type of family of experimental and control group.

Around 83% from experimental group and 90% in control group dwelled in joint family.

4.2 ASSESSMENT ON LEVEL OF ANXIETY AND SHOULDER PAIN BEFORE AND AFTER INTERVENTION AMONG THE EXPERIMENTAL AND CONTROL GROUP:

The level of anxiety and shoulder pain among stroke patients in government Rajaji Hospital, Madurai was categorized based on the Modified Spiel Berger's State trait Anxiety scale and Numerical rating pain scale. The mean and mean percentage score on level of anxiety was assessed during the study period to check if the intervention had a role in reducing anxiety and shoulder pain among the stroke patients

SECTION II

Table 3

Assessment on Level of Anxiety among experimental and control group before and after intervention

N = 30

Level of Anxiety	Experimental Group						Control Group					
	Before intervention			After intervention			Before intervention			After intervention		
	No	%	Mean %	No	%	Mean %	No	%	Mean %	No	%	Mean %
Low Anxiety (0 – 48)	-	-	-	30	100	40	-	-	-	-	-	-
Moderate Anxiety (49 –68)	30	100	61	-	-	-	30	100	62.3	30	100	62.1
High Anxiety (69 –100)	-		-	-		-	-		-	-		-

The above table described the level of anxiety of stroke patients before and after intervention in both experimental and control groups. The table revealed that the

stroke patients of both groups had moderate level of anxiety before the intervention. After intervention the level of anxiety decreased from moderate (Mean=61) level to low (Mean=40) in experimental group whereas in control group it remained the same (Mean=62.3). Thus the intervention had reduced the level of anxiety among the experimental group patients.

Assessment on Level of Anxiety among experimental and control group before and after intervention.

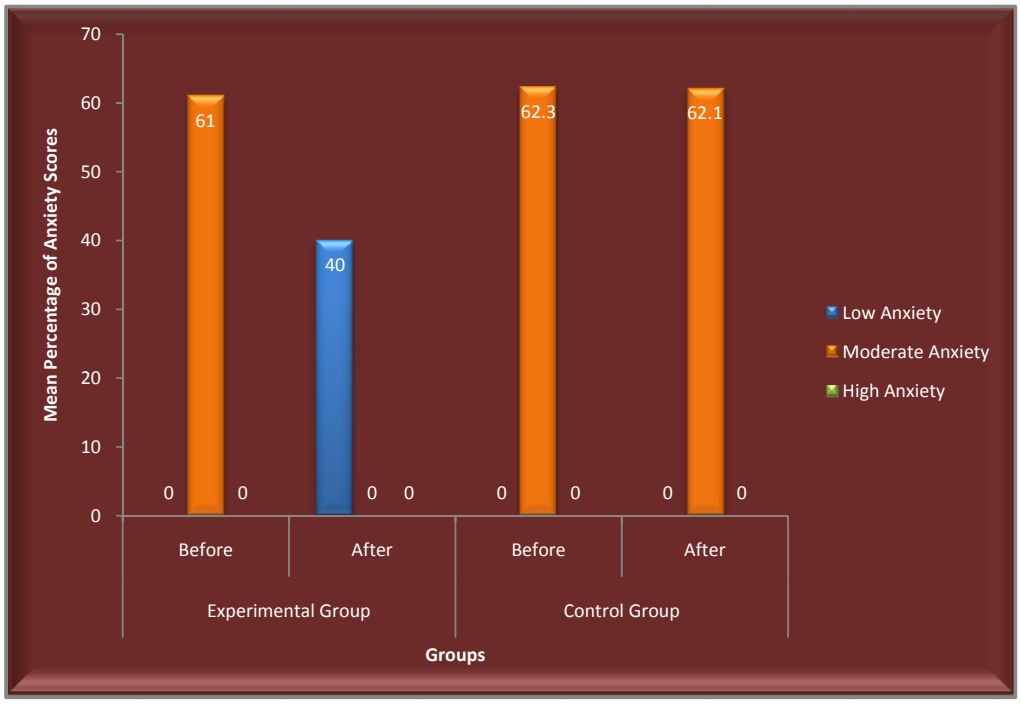

Figure 12: The clustered column narrates the distribution of anxiety level before and after intervention among experimental and control group.

The figure communicated that the stroke patients of both groups had moderate level of anxiety before the intervention. (mean=61%). But after the intervention the level drastically reduced to (mean=40) for the experimental group and the level remained unchanged in the control group (mean=62.3).

Table 4

Assessment on Level of Shoulder Pain among experimental and control group before and after intervention

N = 30

Level of Pain	Experimental Group						Control Group					
	Before intervention			After intervention			Before intervention			After intervention		
	No	%	Mean %	No	%	Mean %	No	%	Mean %	No	%	Mean %
No Pain (0)	-	-	-	-	-	-	-	-	-	-	-	-
Mild pain (1 – 3)	-	-	-	10	30	20	-	-	-	-	-	-
Moderate Pain (4–6)	1	3	60	20	70	40	2	6	60	2	6	60
Severe Pain (7–10)	29	97	74	-	-	-	28	94	72	28	94	72

The above table exhibited the level of shoulder pain of stroke patients before and after intervention in both experimental and control group. The table revealed that the stroke patients of both groups had severe shoulder pain before the intervention. After intervention the level of shoulder pain decreased from severe (74%) and moderate (60%) level to moderate (40%) and mild (20%) pain levels in experimental group. In control group the level of pain remained the same at both level of assessments (60% moderate pain and 72% severe pain). Thus the intervention had reduced the level of shoulder pain among the experimental group patients

Assessment on Level of Shoulder Pain among experimental and control group before and after intervention

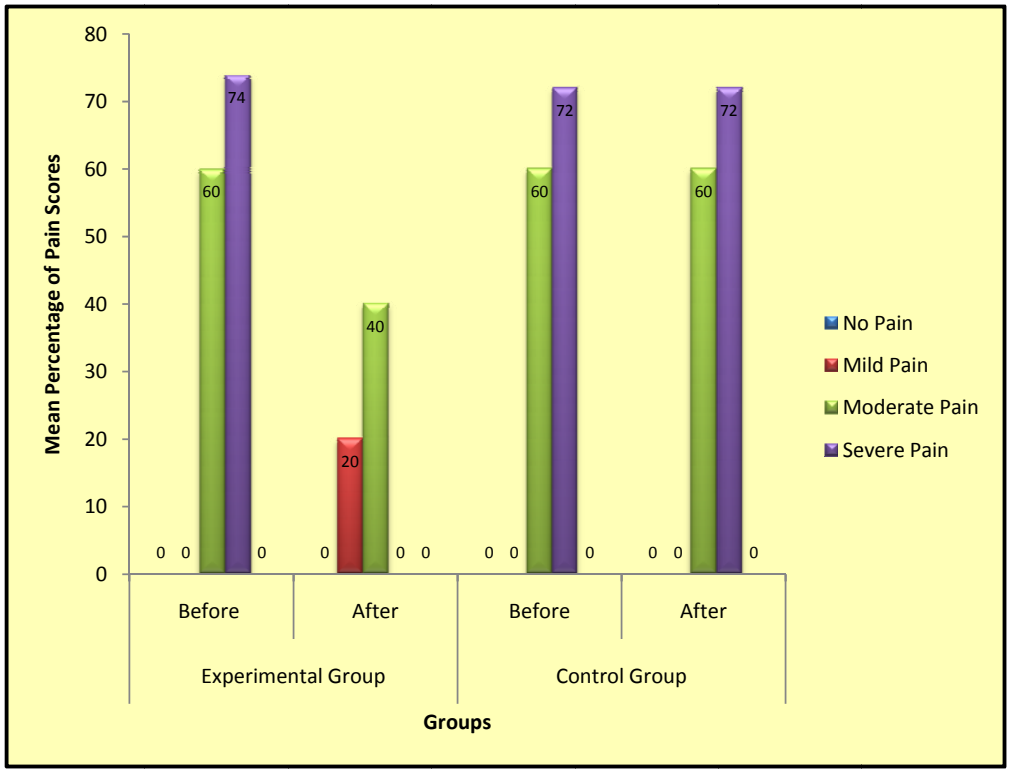

Figure 13: This clustered column display the level of shoulder pain before and after intervention for experimental and control group. Before intervention (mean= 60%)of experimental group had severe pain and after intervention the level of shoulder pain decreased from severe (mean=74%) and moderate (mean=60%) level to moderate (mean=40%) and mild (mean=20%) pain levels in experimental group. In control group the level of pain remained the same at both level of assessments (mean=60% moderate pain and mean=72% severe pain). Thus the intervention had reduced the level of shoulder pain among the experimental group patients.

4.3 ANALYSIS ON THE LEVEL OF ANXIETY BEFORE AND AFTER INTERVENTION IN EXPERIMENTAL AND CONTROL GROUP:

The level of anxiety among the stroke patients revealed that there was a decrease in the mean score after intervention. To prove the significance in the result paired 't' – test and 't' – test for independent samples were applied.

SECTION III

Table 5

Mean, Standard Deviation and t – value on the anxiety scores of experimental group

N = 30

Intervention	Mean	Standard Deviation	Mean Difference	t - value
Before	61.40	2.471	20.267	t value=22.63, df=29 highly significant
After	40.466	5.29		

**p<0.01

The table revealed that the mean anxiety score of experimental group showed wide reduction from 61.40 to 40.46. The mean difference was 20.267. The standard deviation was 2.47 before the intervention and 5.29 after the intervention. The calculated t value was 22.63 which was much higher than the table value at 0.01 level of significance with 29 degrees of freedom. Thus the inferential statistical method proved that the difference in the mean scores indicate a significant change in the level of anxiety. Thus slow stroke back massage was effective in reducing the anxiety among the stroke patients.

Table 6

Mean ,Standard Deviation and t – value on the anxiety scores of controlgroup

N = 30

Intervention	Mean	Standard Deviation	Mean Difference	t - value
Before	62.3	2.09	0.13	t value=1.0 df=29 Not significant.
After	62.17	2.10		

**p<0.01

The table revealed that the mean anxiety score of control group showed no variation in both level of assessment. The mean difference was only 0.13. The standard deviation was 2.09 before the intervention and 2.10 after the intervention. The calculated t value of control group was 1.0 which was much lower than the table value at 0.01 level of significance with 29 degrees of freedom. Thus the inferential statistical method proved that the difference in the mean score was due to chance and the change in the level of anxiety was not influenced.

Table 7

Mean, Standard Deviation and t – value on the anxiety scores after intervention

N = 30

Group	Mean	Standard Deviation	t - value
Experimental	41.133	5.29	19.9**df=29 Highly significant
Control	62.3	2.09	

**p,0.01

The table revealed that the calculated t value was 19.9 which much higher than the table value at 0.01 level of significance with 29 degrees of freedom. The research hypothesis "There is significant difference in the mean anxiety scores after the intervention among the stroke patients of both experimental and control group" was accepted. Thus the inferential statistical method proved that the difference in the mean scores show a significant change in the level of anxiety. Thus slow stroke back massage was effective in reducing the anxiety among the stroke patients.

4.4 ANALYSIS ON THE LEVEL OF SHOULDER PAIN BEFORE AND AFTER INTERVENTION IN EXPERIMENTAL AND CONTROL GROUP:

The level of shoulder pain among the stroke patients revealed that there was a decrease in the mean score after intervention. To prove the significance in the result paired't' – test and't' – test for independent samples were applied.

SECTION IV

Table 8

Mean, Standard Deviation and t – value on the shoulder pain scores of experimental group

N = 30

Intervention	Mean	Standard Deviation	Mean Difference	t - value
Before	7.67	0.61	4	83.42** df=29 Highly significant
After	3.67	0.48		

**p<0.01

The table revealed that the mean shoulder pain score of experimental group showed significant reduction from 7.67 to 3.67. The mean difference was 4. The standard deviation was 0.61 before the intervention and 0.48 after the intervention. The calculated t value was 83.42 which was much higher than the table value at 0.01 level of significance with 29 degrees of freedom. Thus the research hypothesis "There is significant difference in the mean shoulder pain scores before and after the intervention among the experimental group was accepted. Thus the inferential statistical method proved that the difference in the mean scores portrayed a significant change in the level of shoulder pain. Thus slow stroke back massage was effective in reducing the shoulder pain among the stroke patients.

Table 9

Mean, Standard Deviation and t – value on the shoulder pain scores of control group

N = 30

Intervention	Mean	Standard Deviation	Mean Difference	t - value
Before	7.67	0.76	0	0
After	7.67	0.76		Not significant

The above table clearly represented that there exists no t value for the above said control group since there was no mean difference between the pain scores. Thus the inferential statistical method proved that the change in the level of shoulder pain was not influenced.

Table 10

Mean Standard Deviation and t – value on the shoulder pain scores of experimental and control group after intervention

N = 30

Group	**Mean**	**Standard Deviation**	**t - value**
Experimental	3.67	0.48	24.19** DF=28
Control	7.67	0.76	Highly significant

**p,0.01

The table proclaimed that the experimental group mean score was 3.67, SD=0.48 after the intervention. But the control group value stayed at the same level of 7.67, SD=0.76. The calculated t value was much higher than the table value at 0.01 level of significance with 29 degrees of freedom. Thus the research hypothesis "There is significant difference in the mean shoulder pain scores after the intervention among the stroke patients of both experimental and control group" was accepted. Thus the inferential statistical method proved that the difference in the mean scores show a significant change in the level of shoulder pain. Thus slow stroke back massage is effective in reliving the shoulder pain among the stroke patients.

4.5 ASSOCIATION BETWEEN THE LEVEL OF ANXIETY AND SHOULDER PAIN WITH SELECTED DEMOGRAPHIC VARIABLES:

The level of anxiety and shoulder pain among the stroke patients was associated with certain influencing demographic variables based on the literature support. Karl Pearson's coefficient of correlation and χ^2, were used to associate on level of anxiety and pain after intervention

SECTION V

Table 11

r – value for level of anxiety and shoulder pain with selected demographic variables for experimental and control group

Demographic variable	'r'			
	Anxiety		Shoulder Pain	
	Experimental Group	Control Group	Experimental Group	Control Group
Age	0.194964	0.4006311	-0.22491	0
Education	-0.04445	-0.126	0.055728	0.025
Income	0.055546	-	-0.2357	-

The level of anxiety and shoulder pain among stroke patients were correlated with the quantitative variables age, education and income among the experimental and control group participants. The table above revealed that positive correlation existed between age and anxiety factor and education and pain factor among both the groups, and income of experimental group with anxiety level. Since the members in the control group had same income category (<Rs.5000.00) there existed no correlation with the anxiety and shoulder pain factors. Negative correlation existed between education and anxiety among both the groups. Age and income of experimental group had negative correlation with the shoulder pain factor.

Table 12

χ^2 – value for level of anxiety and shoulder pain with selected demographic variables

Demographic variable	χ^2			
	Anxiety		Shoulder Pain	
	Experimental Group	Control Group	Experimental Group	Control Group
Occupation	0.7627	0.0532	1.4339	0.0976 *p=0.05,DF=1 Not significant

The table revealed that the calculated χ^2 value was much lower than the table value at 0.05 level of significance with 1 degree of freedom. This showed that the demographic variables occupation of the stroke patients had no association with their level of anxiety and shoulder pain.

4.6 ASSOCIATION BETWEEN THE LEVEL OF ANXIETY, SHOULDER PAIN AND SELECTED CLINICAL VARIABLES:

The level of anxiety among the stroke patients was associated with certain influencing clinical variables based on the literature support. Karl Pearson's coefficient of correlation, was used to associate on level of anxiety and pain after intervention

SECTION VI

Table 13

r – Value for level of anxiety, pain and selected clinical variables

Clinical variable	'r'			
	Anxiety		Pain	
	Experimental Group	Control Group	Experimental Group	Control Group
Temperature	-0.19	-0.21	0.07	-0.27
Pulse	-0.07	-0.06	-0.07	0.09
Respiration	0.13	-0.45	-0.11	0.11
Blood Pressure	0.15	-0.08	-	-

The level of anxiety was correlated with temperature, pulse, respiration and blood pressure of the stroke patients. The result proved that anxiety in experimental group was positively correlated with respiration and blood pressure, while all the others were negatively correlated with anxiety. Pain in experimental group was positively correlated with temperature; pain control group was positively correlated with pulse and respiration. Blood pressure of the patients did not influence pain factor in both the groups.

CHAPTER V
DISCUSSION

This chapter discusses the findings of the study derived from statistical analysis with its pertinence to the objectives and related literature of the study.

The problem statement was **"A study to assess the effectiveness of slow stroke back massage on reduction of anxiety and shoulder pain among stroke patients in medical ward, Government Rajaji hospital, Madurai."**

OBJECTIVES OF THE STUDY:

The objectives of the study were

- To assess the level of anxiety of stroke patients in the experimental and control group before and after intervention.
- To assess the level of shoulder pain of stroke patients in the experimental and control group before and after intervention.
- To compare the mean difference of anxiety and shoulder pain of stroke patients between the experimental and control group.
- To test the association between the mean difference on anxiety and shoulder pain with selected factors among stroke patients in experimental group and control group.

The demographic variables selected for the study were age, gender, religion, education, occupation, income, marital status and type of family. Age distribution stated that, majority of the patients were above 51 years, where 30% in experimental group and 37% in control group ranged from 51 to 65 years of age and 33% of experimental group and 37% of control group were above 65 years.

Among the thirty, 83% from experimental group and 93 % in control group were male and 17% from experimental group and 7% in control group were female.

Based on the religion, majority of the inmates were Hindu (90% from experimental group and 97% in control group), 3% in control group alone were Christian while 10% in experimental group alone were Muslim.

Educational status of the stroke patients discussed that about 75% in both the groups did not have a formal education while 23% from experimental group and 20 % in control group had middle school education and 7% from the control group alone had higher secondary level of education.

The data on occupation of the patient spoke that 53% equally in both the groups were working as cooly, while 47% equally in both the groups were unemployed.

The income level range from Rs. <5000 to Rs. >15000. Ninety percent in experimental group and cent percent in control group earned less than Rs.5000, while 10% in experimental group alone were earning between Rs.10001 to Rs. 15000.

Marital status discussed was, 90% from experimental group and 87% in control group were married while 10% from experimental group and 17% in control group spouses were not alive.

Around 83% from experimental group and 90% in control group lived in a joint family while the others lived in a nuclear family system.

OBJECTIVE

- The first objective was to assess the level of anxiety of stroke patients in the experimental and control group before and after intervention.

The findings of the study revealed that the stroke patients of both groups had moderate level of anxiety before the intervention (experimental group mean=61%; SD=2.471; control group mean= 62.3%; SD= 2.09). After intervention the level of anxiety declined from moderate to low level (Mean=40%; SD=5.29) in experimental group whereas in control group it remained the same. The mean of experimental

group after intervention was 41.133; whereas for control group was 62.3. Standard deviation of experimental group after intervention was 5.29 and control group was 2.09. The t – value on the anxiety score for experimental and control group was 19.9 at 0.01 level of significance with 29 degree of freedom. Thus the inferential statistical method proved that there was a significant change in the level of anxiety. Thus slow stroke back massage was effective in relieving the anxiety among stroke patients.

Another study give strength to the present study was study conducted by Bazrafzan. (2007) to assess the effect of slow stroke back massages on anxiety level among primigravid women in two clinics in Shiraz. The means of the anxiety level were 51±6.6 and 49.90±6.6 at baseline in the intervention and control groups, respectively (P=0.460). After the intervention, the means of anxiety level were 48.18±6.52 and 51.50±7.39 in the intervention and control groups, respectively (p=0.036) According to the results, slow stroke back massage seemed to be an effective nursing intervention for anxiety relief in primigravid women. It provides an opportunity for nurses to offer individualized and holistic patient care.

The report of the present study is consistent with the study conducted by Mina Jouzi (2009) on the assessment of the effect of massage therapy on 50 stroke patients in Iran. Results of the study showed the positive effect of massage on anxiety level.

The findings of the present study were supported by another study conducted by Staffs of nursing department (2004) at the Hong Kong polytechnic university in Wong Chunk Hang hospital. Mean anxiety and shoulder pain of experimental group reduced from 42.8 to 28.6 and 44.2 to 29.6; $p<.05$ respectively. Mean anxiety and shoulder pain of control group remained from 40.7 to 40.9 and 44.3 to 44.4; $p<.05$ respectively. Results of this study showed that 10 minutes of nightly slow stroke back massage had significantly reduced pain, anxiety, blood pressure and heart rate for subjects in experimental group as compared to subjects in the control group.

- The second objective of the study was to assess the level of shoulder pain of stroke patients in the experimental and control group before and after intervention.

The findings of the study declared that the stroke patients of both groups had severe shoulder pain before the intervention. Experimental group values were mean=7.67; SD=.61. For control group, mean=7.67; SD=.76. After intervention the level of shoulder pain eased off from severe and moderate level to moderate and mild level in experimental group (mean= 3.67; SD=.48. In control group the level of pain remained the same at both level of assessments. The after intervention value of experimental group was SD=0.48; and control group SD= .76. The t – value on the shoulder pain after intervention for experimental and control group was 24.19 at .01 level of significance with 29 degree of freedom, which was considered as highly significant. Thus the inferential statistics displayed that slow stroke significantly diminished the level of shoulder pain among experimental group stroke patients.

The present study was bolstered by the study of Funda.et.al (2010) who examined the effects of back massage on postoperative pain, anxiety, and vital signs on postoperative days 1-3 in patients who had undergone total hip or knee arthroplasty. Statistically significant differences in pain intensity ($F = 14.50$; $p = .000$), anxiety level ($F = 19.13$; $p = .000$), and vital signs ($F = 169.61, 9.14, 14.23, 65.64$; $p = .000$) measured over time were found between the experimental and the control group. Results of this research provided evidence to support the use of back massage at bed rest times of patients to decrease pain and anxiety. The interventions helped them to forget about their pain for a while and improved their anxiety state.

This objective was supported by Jean.kutner. et.al. (2008) who conducted a randomized clinical trial among the population – based palliative care Research Network in Florida to evaluate the efficacy of massage for decreasing pain and symptom of distress and improving quality of life among patients with advanced cancer. Both groups demonstrated immediate improvement in pain (massage, −1.87 points [95% CI, −2.07 to −1.67 points]; control, −0.97 point [CI, −1.18 to −0.76 points]) and mood (massage, 1.58 points [CI, 1.40 to 1.76 points]; control, 0.97 point [CI, 0.78 to 1.16 points]). Massage was superior for both immediate pain and mood

(mean difference, 0.90 and 0.61 points, respectively; $P < 0.001$). The results of the study demonstrated that massage has immediate beneficial effects on pain and mood among patients with advanced cancer.

- The third objective of the study was to compare the mean difference of anxiety and shoulder pain of stroke patients between the experimental and control group.

The findings of the study disclosed that the following values for anxiety such as mean= 41.1333; SD=5.29 for the experimental group and mean=62.3 SD=2.09 for the control group. The t – value on the anxiety score was 19.9 at 0.01 level with 29 degree of freedom. The values for shoulder pain for experimental group and control group mean= 3.67; SD= .48 and mean= 7.67; SD=.76 respectively. The t- value was 24.19 at 0.01 level at 29 degree of freedom which was considered highly significant. Thus slow stroke back massage was effective in relieving the anxiety and shoulder pain among the stroke patients.

- The fourth objective was to test the association between the mean difference on anxiety and shoulder pain with selected factors among stroke patients in experimental group and control group.

The level of anxiety was correlated with temperature, pulse, respiration and blood pressure of the stroke patients. The result proved that anxiety in experimental group was positively correlated with respiration and blood pressure, (r= 0.13 and 0.15) while temperature and pulse were negatively correlated with anxiety (-0.19 and -0.07). Pain in experimental group was positively correlated with temperature (0.07). Pain in control group was positively correlated with pulse and respiration (0.09 and 0.11 respectively). Blood pressure of the patients did not influence pain factor in both the groups.

The level of anxiety and pain among stroke patients were correlated with the quantitative variables age, education and income among the experimental and control group participants. The findings revealed that positive correlation existed between age and anxiety factor (r=0.194964 for experimental group and 0.4006311 for control

group) and education and pain factor (0.055728 for experimental group and 0.025 for control group) among both the groups, and income of experimental group with anxiety level (r=0.055546). Since the members in the control group had same income category (<Rs.5000.00) there existed no correlation with the anxiety and pain factors. Negative correlation existed between education and anxiety (-0.04445 for experimental group and -0.126) among both the groups. Age and income of experimental group had negative correlation with the pain factor (-0/22491 and -0.2357 respectively).

The objective of the present study was supported by a study conducted by Prof.Sebnem (2007) among elders in rest home in Turkey. The study results showed that systolic blood pressure reduced from mean 129 to 122; diastolic blood pressure from 81 to 76%; heart rate from 88 % to 80%; respiratory rate from 22% to 20 at p value at .0.001 significance level.

CHAPTER VI

SUMMARY OF FINDINGS, CONCLUSION, RECOMMENDATION AND IMPLICATION

This chapter presents the summary of the study, summary of findings, conclusion, implications and recommendations.

6.1 SUMMARY OF THE STUDY

The main aim of the study was to determine whether slow stroke back massage had made any significant differences on anxiety and shoulder pain of stroke patients in medical ward, government Rajaji hospital, Madurai.

The conceptual framework of the study was based on the Callistra Roy's Adaptation theory. The research design used in this study was quasi experimental non equivalent control group pretest post test design. The independent variable of the study was slow stroke back massage. The dependent variables were anxiety and shoulder pain.

The samples consisted of 30 stroke patients in the experimental group and 30 stroke patients in the control group. The samples were selected by purposive sampling technique. In the pre test, data regarding demographic and clinical variables, shoulder pain (Numerical pain rating scale), and anxiety (Modified Spielberger state trait anxiety Scale) were collected by interview method. For the experimental group, slow stroke back massage was given for 10 minutes for seven consecutive evening. The control group same pre test data were collected.

The control group was given only routine care but not slow stroke back massage. Post test data on shoulder pain and anxiety were collected from both the group on the 7^{th} day of intervention. The data were analyzed using descriptive and inferential statistics.

6.2 SUMMARY OF THE FINDINGS

Age distribution stated that, majority of the patients were above 51 years, where 30% in experimental group and 37% in control group ranged from 51 to 65 years of age and 33% of experimental group and 37% of control group were above 65 years.

Among the thirty, majority of the patients belonged to male gender.83% from experimental group and 93 % in control group were male and 17% from experimental group and 7% in control group were female.

Based on the religion, majority of the inmates were Hindu (90% from experimental group and 97% in control group), 3% in control group alone were Christian while 10% in experimental group alone were Muslim.

Educational status of the stroke patients discussed that about 75% in both the groups did not have a formal education while 23% from experimental group and 20 % in control group had middle school education and 7% from the control group alone had higher secondary level of education.

The data on occupation of the patient revealed that 53% equally in both the groups were working as cooly, while 47% equally in both the groups were unemployed.

Greater number of patients in experimental group (90%) and cent percent in control group earned less than Rs.5000, while 10% in experimental group alone were earning between Rs.10001 to Rs. 15000.

When considering the Marital status, 90% from experimental group and 87% in control group were married while 10% from experimental group and 17% in control group spouses were not alive.

Around 83% from experimental group and 90% in control group remained in joint family while the others dwelled in a nuclear family system.

ANXIETY DATA

The findings of the study revealed that the stroke patients of both groups had moderate level of anxiety before the intervention (experimental group mean=61%; SD=2.471; control group mean= 62.3%; SD= 2.09). After intervention the level of anxiety declined from moderate to low level (Mean=40%; SD=5.29) in experimental group whereas in control group it remained the same. The mean of experimental group after intervention was 41.133; whereas for control group was 62.3. Standard deviation of experimental group after intervention was 5.29 and control group was 2.09. The t – value on the anxiety score for experimental and control group was 19.9 at 0.01 level of significance with 29 degree of freedom. Thus the inferential statistic method proved that there was a significant change in the level of anxiety. Thus slow stroke back massage was effective in relieving the anxiety among stroke patients.

SHOULDER PAIN DATA

The findings of the study declared that the stroke patients of both groups had severe shoulder pain before the intervention. Experimental group values were mean=7.67; SD=.61. For control group, mean=7.67; SD=.76. After intervention the level of shoulder pain eased off from severe and moderate level to moderate and mild level in experimental group (mean= 3.67; SD=.48 .In control group the level of pain remained the same at both level of assessments. The after intervention value of experimental group was SD=0.48; and control group SD= .76. The t – value on the shoulder pain after intervention for experimental and control group was 24.19 at .01 level of significance with 29 degree of freedom, which was considered as highly significant. Thus the inferential statistics displayed that slow stroke significantly diminished the level of shoulder pain experimental group stroke patients.

SIGNIFICANT FINDINGS

- In the experimental group, there was significant reduction in the level of shoulder pain when compared to the control group after the intervention(t=24.19, df=29, **p=<0.01)
- There was a significant reduction in the level of anxiety among the experimental group when compared to the control group after the intervention(t=19.9, df=29, p=**<0.01)

- In the experimental group, there was a significant reduction in the level of shoulder pain after intervention when compared to before intervention(t=83.42, df=29, **p=<0.01)
- In the experimental group, there was a significant reduction of in the level of anxiety after intervention when compared to before intervention.(t value=22.63, df=29, **p<0.01)
- There was a significant association between the mean difference on anxiety and shoulder pain with selected factors among stroke patients in experimental group and control group.
  - Temperature correlated negatively with anxiety among experimental (-0.19) and control group (-0.21). But it correlated positively with pain for the experimental group (0.07) and negatively with control group (0.27).
  - The association between pulse and anxiety clearly depicted that pulse correlated negatively with anxiety for both experimental and control group. (r value for experimental group = -0.07 and control group -0.06). While the pain too correlated negatively for experimental group (-0.07 and positively for the control group (0.09).
  - Respiration demonstrated a vise a vise correlation with anxiety and pain for experimental and control group. It correlated positively with anxiety for experimental group (0.13) and negatively with control group (-0.45).Pain correlated negatively with experimental group (-0.11) and positively with control group (0.11)
  - There was no association seen with blood pressure and pain for experimental and control group. It correlated positively with anxiety for experimental group (0.15) and negatively with control group (-0.08).

6.3 CONCLUSION

- This study supported the view that slow stroke back massage can reduce shoulder pain and anxiety in stroke patients. In addition it has an effect on the clinical variables like temperature, pulse, respiration and blood pressure too. The effectiveness of slow stroke back massage (SSBM) was substantiated by the participants, who felt that SSBM helped them to involve in self care activities by reducing their pain and anxiety. The results of this study supports

the view that SSBM, as an alternative adjunct to pharmacological treatment. It is a clinically effective nursing intervention for reducing the shoulder pain and anxiety in stroke patients. Nurses can take advantage of this easily implemented, non pharmacological method of massage as an independent nursing action that provides the elderly with physical and psychological comfort.

6.4 IMPLICATIONS

Alleviation of clinical conditions such as pain, tension, anxiety and stress are the primary goals of nursing care. The resource implications of the intervention Slow stroke back massage (SSBM) are considerable, as the technique of SSBM is relatively simple and inexpensive. It can be included as a part of non – pharmacological treatment to benefit the stroke patients. Therefore this study has important implications in the following aspect of nursing.

- Nursing practice
- Nursing education
- Nursing administration
- Nursing research

- **Nursing practice:**
  - **Hospital**
    - ✓ The findings of this study suggested that slow stroke back massage is relatively straightforward and simple; easy to administer.
    - ✓ It takes only brief time, and it requires only minimal supplies.
    - ✓ Moreover it is inexpensive and cost effective intervention.
    - ✓ Hence it can be practiced safely for the stroke patients with shoulder pain and anxiety in the hospital settings.

❖ **Community**

- ✓ Slow stroke back massage can be taught to family care givers of stroke patients; this may provide them with a means of providing tangible evidence of their care and support of the dependent stroke patients.
- ✓ Its good effects may be observed in the well – formed bodies of Indian country people, who still maintain these old traditions.

- **Nursing education:**
  - ✓ There is an extensive and compelling body of research that proves the efficacy of therapeutic massage in promoting general physical well-being, and that it is of particular benefit in stroke as evidenced by this study finding.
  - ✓ Hence this has to be included in the nursing curriculum.
  - ✓ The nursing students must be taught the simple techniques of massage to enhance their skill and practice and benefit the needy patients like stroke patients.

- **Nursing administration:**
  - ✓ In the recent years, there has been an increased acceptance of the complementary therapies in the health care system. Therapeutic massage is one among the complementary therapy which thrives as a therapy over the centuries.
  - ✓ It facilitates the therapeutic relationships between nurse and patient through development of trust and enhanced communication.
  - ✓ Since this study supports the SSBM the nursing administrator must enforce the nurses to practise SSBM for the stroke patients in the clinical settings.

- **Nursing research:**
  - ✓ This study provides scope for future research and utilization of findings.
  - ✓ Further studies can be encouraged to assess the extent to which SSBM can control pain and relieve anxiety when the intervention is given by family members of stroke patients.

6.5 SUGGESTIONS FOR FUTURE STUDY

The investigator recommends the following studies to strengthen nursing care

- A similar study can be conducted on a larger sample.
- Studies can be conducted to examine how slow stroke back massage changes the level of relaxation and anxiety associated with other stroke – related pain conditions.
- A comparative study can be conducted in rural and urban settings among stroke patients to assess the effectiveness of SSBM.
- The study can also be redesigned to include controlled SSBM intervention.
- A study can be conducted to evaluate the difference in the effectiveness of slow stroke back massage among male and female patients.
- The study can be conducted among other disease conditions like cancer, diabetes mellitus and bronchial asthma.
- The study can also be conducted to assess the effectiveness of slow stroke back massage on other variables like vital signs and relaxation.
- A study can be conducted to offer structured instruction programme to educate the family care givers of stroke patients.

BIBLIOGRAPHY

BOOKS

1. Adam and victor. (2001). *Principles of Neurology*. (1st ed.). Sydney: Elsevier.
2. Andrew, D Bersten and Neil Soni. (2007*). Intensive care manual.* (5th ed.) London: Elsevier Medical publication.
3. Alan Vaughan. (2005). *Nursing models for practice*. (3rd ed.). Toronto: BH publications.
4. Basavanthappa, B.T. (2007). *Nursing Research*. (2nd ed.), New Delhi: Jaypee medical publication.
5. Barbara. (2005). *Acute care nurse practitioner secret.* (1st ed.). USA: Elsievier.
6. Brunner and suddarth. (2000). *Text Book of Medical and surgical Nursing*. (9^{th}ed.). Philadelphia: Lippincott company.
7. Denise, F.Folit. (2008*). Nursing Research*. (8th ed.). Indiana: Jaypee.
8. G. P., Dureja. (2004). *Handbook of pain management. (*1st ed.), New Delhi: Elsevier.
9. Ellen Barker. (2002). *Neuroscience Nursing*. (2nd ed.). Philadelphia: Mosby.
10. Karen Lee Fontaine. (2005). *Complementary and Alternative Therapies for Nursing practice.* (2nd ed.), Indiana. Mosby.
11. Kate Grady. (2007). *Pain Medicine*. (1st ed.). New York: Mosby.
12. Jaya Kuruvilla. (2008). *Essential of critical care Nursing.* (1st ed.). New Delhi: Jaypee.
13. Joyce, M., Black., and Jane Hokanson Hawks. (2005). *Medical surgical Nursing*. (7th ed.). USA: Elsievier.
14. Lal, A. (2003). *Pain. (*1st ed.). New Delhi: jaypee.
15. *Lippincott manual of nursing*. (2010). (9th. ed.). New Delhi: Williams and Wilkins.
16. BK., Mahajan. (2006). *Methods in biostatistics.* (6th ed.), Bangalore: Jaypee.
17. Martha. (2001). *Critical care nursing*. (1st ed.). Toronto: WB Saunders.
18. Norman shearly. (1999). *Alternative healing therapies*. (1st. ed.). USA: Bridge water Book Company limited.
19. Oh. (2007). *Intensive care manual*. (5th. ed.). India: Andrew D Bersten Ltd.

20. Onila salins. (2003). *Medical surgical nursing specialties*. (1st ed.). New Delhi: Jaypee.
21. Patricia Hudak. (2005). *Critical care nursing.* (8th ed.). California: Lippincott.
22. Ray, A., Hargrove. (2006). *Medical surgical Nursing*. (4th ed.). Newyork: Lippincott.
23. T.P.Prema. (2002). *Essentials of Neurology. (*1st ed.). New Delhi: Jaypee
24. PK., Varma. (2008). *Principles and practice of critical care.* (1st ed.). New Delhi: BI publications.
25. Shuva Das gupta. (2005). *Nursing interventions for the critically ill*. (1st ed.). New Delhi: Jaypee.
26. Shehy. (2005).*Manual of emergency care. (*6th. ed.). USA: Elsevier.
27. Sole. (2005). *Introduction to critical care*, (4th. ed.). USA: Elsevier.
28. The Washington manual of critical care. (2011). (9th ed.). Newyork: Lippincott.
29. Verna Benner Carson. (2005). *Mental Health Nursing.* (1st. ed.). Baltimore: Saunders Publications.
30. Viyas, JN., Ahuja. (2008). *Text Book of Post Graduate of Psychiatry*. (2nd. ed.). New Delhi: Jaypee Publishers.

JOURNAL REFERENCE:

1. S.,Aaron. (2010). Treatment of acute stroke. *Neurology of India.* vol.58/Issue 3. 441- 442
2. Adarsh Bala, B.M (2008). A sociometric analysis of research output during 1999 – 2008. *Indian Neuroscience research*. vol.58/Issue 4. 29- 30.
3. Azadesh Kamali. (2010). Effect of touch therapy in reducing pain among the elderly. *Nightingale Nursing Times*. vol.5/No 11, 26 – 30.
4. Chinn – Ying,Wu. (2010). Stroke risk factors and subtypes in different age groups: a hospital based study. *Neurology of India.* Vol.58/ Issue 6, 863-865.
5. Hitesh. (2010). Anxiety disorders in ancient Indian literature. *Journal of psychiatry*. *vol.52/ no.3*, 289- 290.
6. Kameshwar Prasad. (2010). Stroke in young, *Neurology of India, vol.58/Issue 3,* 343.
7. Nurray Day apoglu. (2010). Quality of life in stroke patients, *Neurology of India. vol.58/Issue 5,* 697- 700.

8. Paula Cooper Clutter. (2009). Action planning strategies' to achieve quality outcomes. *Critical care Nursing.* Vol.32/No 4, 34-39.
9. M., Pauly. (2009). Revising who gets care, *Advances in nursing science,* vol.33/No 7, 34-38.
10. Peggy, L.,Chinn. (2009). Healthy people, V0L. *Advances in nursing science.* 32/no 4, 25-27.
11. Subhash Kaul, (2010). Genetic basis of stroke, *Neurology of India,* vo.58/Issue 4, 185- 187.

INTERNET RESOURCES

1. Bazrafshan, M. (2009). The Effect of Slow Stroke Back Massages on Anxiety among Primigravid Women. Retrieved from http://journals.tums.ac.ir
2. Cohrane collaboration. (2009). Organised inpatient stroke care for stroke patients. Retrieved from http://www.thecochranelibrary.com
3. Giles, E.Gamble. (2002).Post stroke shoulder pain. Retrieved from www.pubmed.com.
4. Jennie C.I. Tsao. (2007): Massage for chronic pain. Retrieved from www.aapmr.org
5. Julian Bogousslavsky. (1998). The Lausanne stroke Registry: Analysis of 1,000 consecutive patients with First stroke. Retrieved from www.ahajournals.org.
6. Kumar Banerjee. (2006). Epidemiology of stroke in India. Retrieved from www.internationalbrain.org
7. Klit, H. Finnerup, NB. Overvad, K. Andersen. G, Jensen TS, Pain following stroke: a population-based follow-up study. Retrieved from www.aann.org
8. Linda Fehrs. (2006). Stroke Rehabilitation. Retrieved from googlescholar.com.
9. Martin Dennis, Suzanne O'Rourke, Stephanie Lewis, Michael Sharpe, Charles Warlow. (1999). Emotional outcomes after stroke: factors associated with poor outcome. Retrieved from www.pubmed.com.
10. Philip A. Wolf, Robert D. Abbott, and William B. Kannel. (1991). Atrial Fibrillation as an Independent Risk Factor for Stroke: The Framingham Study. Retrieved from www.ahajournals.org.
11. Sandra Meek. (1992). Effects of slow stroke back mass on Relaxation in Hospice. Retrieved from www.pubmed.com.

12. Sandra Meek. (1993). The effectiveness of slow stroke Back massage in diffusing agitated individuals with Alzheimer's disease. Retrieved from www.neuroland.com.
13. P.K.Sethi. (2008). Stroke - Incidence in India and Management of Ischaemic stroke. Retrieved from www.braintrauma.org.
14. Sylvia Carison. (2008). Massage for stroke patients. Retrieved from www.googlescholar.com.
15. J.C. van Swieten, P.J. Koudstaal, M.C. Visser. (1998). Interobserver Agreement for the Assessment of Handicap in Stroke Patients. Retrieved from www.ahajournals.org.
16. K.Walsh. (2001).Management of shoulder pain in patients with stroke, Retrieved from www.postgradmedj.com.
17. Pamela, M., Rist, I- Min Lee, Carlos,S., Kase, J., Michael Gaziano, Tobias Kurth. (2011). Physical activity and Functional Outcome From Cerebral Vascular Events in Men. Retrieved from www.pubmed.com.
18. Liping Liu, David Wang, K.S., Lawrence Wong, Yongiun Wang.(2008). Stroke and stroke care in China. Retrieved from www.pubmed.com.
19. Valery,L.,Feigin, Rita Krishnamurthi. (2009).Stroke Prevention in the Developing World. Retrieved from www.pubmed.com.
20. Karin, J.M., McCoy.(2002). Even a minor stroke might lead to stress and anxiety. Retrieved from www.pubmed.com.

Ref.no.23339/E4/3/09 dt 09.05.11. Govt. Rajaji Hospital, Madurai – 20.

INSTITUTIONAL REVIEW BOARD / INDEPENDENT ETHICS COMMITTEE

Govt Rajaji hospital and Madurai Medical Collage, Madurai 625020.

Proceedings and recommendations of the IRB / IEC meeting held on 31.03.20 11

The Institutional Review Board/ Independent Ethics Committee of the Govt. Rajaji Hospital and Madurai Medical College, Madurai 625020 met on the 31.03.2011 at 12 noon, when the following members were present.

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1. Dr.S.M.Sivakumar, M.S (Gen. Surgery)	M.S, Govt. Rajaji Hospital, Madurai.	Convener
2. Dr.N.Vijayasankaran, M.Ch (Uro.)	Sr. Consultant Urologist Madurai Kidney Centre, Sivagangai Road, Madurai	Chairman
3. Dr.T.Meena, MD or Dean I/c (MMC)	Professor of Physiology, Madurai Medical College	Member
4. Dr.Moses K.Daniel MD (Gen.Medicine)	Professor of Medicine Madurai Medical College	Member
5. Dr.M.Gobinath, MS (Gen. Surgery)	Professor of Surgery Madurai Medical College	Member
6. Dr.B.K.C.MohanPrasad, M.ch, (Surg. Oncology)	Professor of Surg.Oncology Madurai Medical College	Member -Secy.
7. Shri.M.Sridher, B.Sc.B.L.	Advocate, 623-B.ll.Floor, East II Cross, K.K.Nagar, Madurai.20.	Member
8. Shri.O.B.D.Bharat, B.sc.,	Businessman Plot No.588, K.K.Nagar.Madurai.20.	Member
9. Shri.S.Sivakumar, M. A (Social) M.Phil	Sociologist, Plot No.51 F.F, K.K Nagar, Madurai.	Member

The Committee considers the 45 dissertations / research / study Proposal submitted by PG students / Non Medical students from outside the institution as per agenda. After discussion, the following dissertations I records / study proposals are approved.

Mrs.G.Kousalya	Second Batch M.Sc Nursing M.M.C Madurai.	A Study to assess the effectiveness of slow stroke back massage on reduction of anxiety and shoulder pain among stroke patients in Medical ward, Government Rajaji hospital, Madurai

Medical superintendent

From

The Principal,
College of Nursing,
Madurai Medical College,
Madurai.

To

The Professor & Head of the Department,
Department of Medicine,
Government Rajaji Hospital,
Madurai.

Respected Sir,

Sub: Requesting permission to allow Mrs. G.Kousalya, M.Sc (N) I year student of College of Nursing, Madurai Medical College, Madurai, to conduct a Dissertation study at medical ward — regarding.

As per the Curriculum recommended by the Indian Nursing Council and The Tamilnadu Dr. M.G.R. Medical University, all the M.Sc. Nursing Students are required to conduct a dissertation study for the partial fulfillment of the course.

Mrs. G.Kousalya is a bonafide student of College of Nursing, Madurai Medical College, and doing M.Sc. Nursing I year (Medical Surgical Nursing). She has selected a study topic "A study to assess the effectiveness of slow stroke back massage on anxiety and shoulder pain among stroke patients " in medical ward, Government Rajaji Hospital, Madurai-20." for her dissertation. She wants to conduct the study at Medical ward.

I kindly request you to consider her request and allow her to conduct the study in your esteemed department.

Thanking You,

Madurai-20.

Yours sincerely,

Permitted 23.2.11

PROFESSOR AND HEAD
DEPARTMENT OF MEDICINE
MADURAI MEDICAL COLLEGE
MADURAI-625 020.

23/2/11

Principal
COLLEGE OF NURSING
Madurai Medical College
Madurai-20.

SECTION-A

PART-I DEMOGRAPHIC DATA

Enter the relevant data about you in the following statements.

1. Age in years ( )
   a. 21 to35
   b. 36 to 50
   c. 51 to 65
   d. > 65years

2. Sex ( )
   a. Female
   b. Male

3. Religion ( )
   a. Hindu
   b. Muslim
   c. Christian
   d. Others

4. Educational qualification ( )
   a. No formal education
   b. Up to middle school level
   e. Higher secondary level
   f. Diploma/Degree
   g. Post graduate and above

5. Occupation ( )
   a. Unemployed
   b. Govt employee
   c. Private
   d. Self employee
   e. Cooly

6. Total income of the family (per month) ( )
   a. Rs. < 5000
   b. Rs. 5001 - 10,000
   c. Rs. 10,001- 15,000
   d. Rs. > 15000

7. Marital status ( )
   a. Married
   b. Unmarried.
   c. Spouse not alive
   d. Divorced

8. Type of the family ( )
   a. Nuclear family
   b. Joint family
   c. Extended family
   d. Separated family

PART II - CLINICAL VARIABLE

1. Temperature ( )
2. Pulse ( )
3. Respiration ( )
4. Blood pressure ( )

SECTION -B

MODIFIED SPIEL BERGERS STATE ANXIETY SCALE

Below are given 25 statements indicating your state of anxiety. There is no right or wrong answer. Circle the appropriate number to the right of the statement to indicate how you feel now.

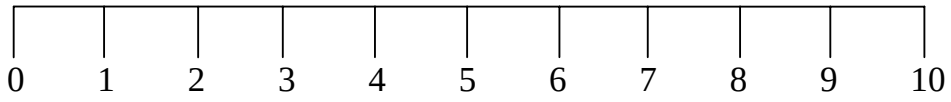
S.NO	QUESTION	Not at	Some what	Moderately so	Very much so
1.	* I feel calm	1	2	3	4
2.	I feel secure	1	2	3	4
3.	I feel tensed	1	2	3	4
4.	I feel strained	1	2	3	4
5.	I feel at ease	1	2	3	4
6.	I feel upset	1	2	3	4
7.	I am presently worrying over possible misfortunes	1	2	3	4
8.	* I feel satisfied	1	2	3	4
9.	I feel frightened	1	2	3	4
10.	* I feel comfortable	1	2	3	4
11.	* I feel self confident	1	2	3	4
12.	I feel nervous	1	2	3	4
13.	I am jittery	1	2	3	4
14.	I feel confidence	1	2	3	4
15.	I am relaxed	1	2	3	4
16.	I feel content	1	2	3	4
17.	I am worried	1	2	3	4
18.	I feel confused	1	2	3	4
19.	I feel steady	1	2	3	4
20.	I feel pleasant	1	2	3	4
21.	I feel powerlessness	1	2	3	4
22.	I feel hopelessness	1	2	3	4
23.	I feel low self esteem / guilt	1	2	3	4
24.	* I feel better	1	2	3	4
25.	* I feel it cures	1	2	3	4

Note: * - Reversed items

SECTION - C

NUMERICAL RATING PAIN SCALE

(Look at this scale and points to a number according to the pain you experience smaller the number, lesser pain and higher the number, greater the pain)



Pre test & Post test	No pain	Mild	Moderate	Severe
Pre test 1 day				
Post test 7^{th} days				

0 - No pain

1 -3 - Mild pain

4-6 - Moderate pain

7-10 - Severe pain

படிவம் - அ

பகுதி **I**:தனிநபர் விபரங்கள்

கீழ்க்கண்ட வற்றில் சரியான பதிலை தேர்வு (✓) செய்யுங்கள்

1. வயது (ஆண்டுகளில்)

அ. 21 முதல் 35 வரை
ஆ. 36 முதல் 50 வரை ( )
இ. 51 முதல் 65 வரை
ஈ. 65 மேல்

2. பாலினம்

அ. பெண் ( )

ஆ. ஆண்

3. மதம்

அ. இந்து ( )
ஆ. கிறிஸ்தவர்
இ. முஸ்லீம்
ஈ. பிற மதத்தவர்

4. கல்வித்தகுதி

அ. படிப்பறிவில்லாதவர்
ஆ. தொடக்கக்கல்வி கற்றவர்
இ. மேல்நிலைக்கல்வி கற்றவர் ( )
ஈ. தொழிற்கல்வி கற்றவர்பட்டதாரி
உ. மேல்நிலை பட்டதாரி அதற்கும் மேல்

5. தொழில்

அ. வேலை இல்லாதவர்
ஆ. அரசு வேலை
இ. தனியார் நிறுவனத்தில் வேலை ( )

ஈ. சொந்த தொழில்
உ. கூலி

6. குடும்ப வருமானம் (ஒரு மாதத்திற்கு)

அ. ரூ.5000 மற்றும் அதற்கும் கீழ்
ஆ. ரூ.50001 முதல் ரூ10000 வரை ( )
இ. ரூ.10001 முதல ரூ 15000 வரை
ஈ. ரூ 15001 மற்றும் அதற்கும் மேல்

7. திருமண நிலை

அ. திருமணமானவர்
ஆ. திருமணமாகாதவர் ( )
இ. வாழ்க்கைத்துணையை இழந்தவர்
ஈ. விவாகரத்து பெற்றவர்

8. குடும்ப வகை

அ. தனிக்குடும்பம்
ஆ. கூட்டுக்குடும்பம் ( )
இ. ஒரே வீட்டில் பல குடும்பங்களாக வாழ்பவர்
ஈ. பிரிந்த குடும்பம்

பகுதி – II
மருத்துவக்குறிப்புகள்

1. உடல் உஷ்ண அளவு ( )
2. நாடித்துடிப்பு அளவு ( )
3. சுவாச அளவு ( )
4. இரத்தக்கொதிப்பு அளவு ( )

படிவம் -ஆ
திருத்தியமைக்கப்பட்ட ஸ்பில்பெர்கர்சஷகின் மன உணர்வை மதிப்பிடும் பட்டியல்

பின்வரும் 25 கூற்றுகள் உங்கள் மன உணர்வைப்பற்றி கேட்கப்பட்டுள்ளன. இதில் சரி ∴ தவறு என்று பதில் கிடையாது. இவற்றில் சரியானது என்று நீங்கள் உணர்வதை வட்டமிடவும்.

வ. எண்	கூற்றுகள்	இல்லை	ஓரளவு	மிதமாக அளவு	அதிக அளவு
1. *	நான் அமைதி நிலையில் இருக்கிறதாக உணர்கிறேன்.	4	3	2	1
2. *	நான் பாதுகாப்பாக உள்ளதாக உணர்கிறேன்.	4	3	2	1
3.	நான் மன இறுக்கத்துடன் இருக்கிறேன்.	1	2	3	4
4.	நான் மன அழுத்தம் இருப்பதாக உணர்கிறேன்	1	2	3	4
5. *	என் மனம் இலகுவாக இருப்பதாக உணர்கிறேன்.	4	3	2	1
6.	நான் பாதிப்படைந்து இருப்பதாக உணர்கிறேன்	1	2	3	4
7.	வரப்போகும் துரதிஷ்டங்களை நினைத்து தற்போது வருத்தப்படுகிறேன்.	1	2	3	4
8. *	நான் திருப்தியுடன் இருப்பதாக உணர்கிறேன்.	4	3	2	1
9.	நான் பயப்படுவதாக உணர்கிறேன்.	1	2	3	4
10. *	நான் சௌகரியமாய் இருப்பதாக உணர்கிறேன்.	4	3	2	1
11. *	நான் தன்னம்பிக்கையுடன் இருப்பதாக உணர்கிறேன்	4	3	2	1
12.	எனக்கு நடுக்கம் இருப்பதாக உணர்கிறேன்	1	2	3	4
13.	நான் திகைக்கிறேன்	1	2	3	4
14.	நான் முடிவு எடுக்க முடியாதவர் போல் நினைக்கிறேன்.	1	2	3	4
15. *	என் மனம் அமைதியாக இருப்பதாக உணர்கிறேன்	4	3	2	1
16. *	நான் நம்பிக்கையுடன் இருப்பதாக உணர்கிறேன்	4	3	2	1
17.	நான் கவலையுடன் இருக்கின்றேன்	1	2	3	4
18.	நான் மனக்குழப்பத்துடன்	1	2	3	4

வ. எண்	கூற்றுகள்	இல்லை	ஓரளவு	மிதமாக அளவு	அதிக அளவு
	இருப்பதாக உணர்கிறேன்				
19. *	நான் மன உறுதியுடன் இருக்கின்றேன்	4	3	2	1
20. *	நான் மகிழ்ச்சியாக இருப்பதாக உணர்கிறேன்.	4	3	2	1
21.	நான் சக்தியை இழந்தது போல் உணர்கிறேன்.	1	2	3	4
22.	நான் நம்பிக்கையை இழந்தாற்போல் நினைக்கிறேன்	1	2	3	4
23.	நான்குறைவான மதிப்புடையவனாக / தவறிழைத்தவனாக கருதுகிறேன்	1	2	3	4
24. *	நான் நன்றாக இருப்பதாக உணர்கிறேன்.	4	3	2	1
25. *	நான் குணமடைவேன் என்று எண்ணுகிறேன்	4	3	2	1

பின்குறிப்பு: *- எதிர்மறை வாக்கியங்கள்

குறைந்த அளவு பயம் - 0 முதல் 48 வரை

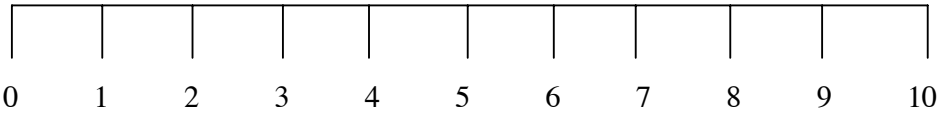
மிதமான அளவு பயம் - 49 முதல் 68வரை

அதிக அளவு பயம் - 68 முதல் 100 வரை

பகுதி - இ

வலி எண்ணீட்டு அளவுகோல்

எண் குறி மதிப்பீட்டு அளவின் மூலம் தோள்பட்டை பகுதி வலியின் தீவிரத்தை அளவிடல்.



பரிசோதனைக்கு முன்பும் பின்பும்	வலி இல்லை	குறைந்த வலி	மிதமான வலி	மிக அதிக வலி
பரிசோதனைக்கு முன் -முதல் நாள்				
பரிசோதனைக்கு பின்- ஏழாம் நாள்				

0 - வலி இல்லை

1 – 3 - குறைந்த வலி

4 – 6 - மிதமான வலி

7 – 10 - மிக அதிகமான வலி

SLOW STROKE BACK MASSAGE

Slow stroke back massage was originally described by Elizebeth as a slow rhythmic stroking with the hands.

The procedure of the massage consists of the following steps:

1. The patient should be either seated in a chair leaning over a table on to a pillow or lying in a prone position.

2. Firmly grasp the top of the patient’s shoulders with both hands and place the thumbs of each hand just below the base of the skull, making tiny circular movements on the upper neck.
3. Place the palm of one hand at the base of the skull and make a long smooth stroke all the way down the patient’s spine to his / her waist. The second hand follows the first at the base of the skull and strokes down the spine as the first hand returns to the base of the skull.
4. Place hands on either side of the neck under the patient’s ears and stroke down and over the patient’s collarbones with thumbs just over the shoulder blades. Repeat the motions several times.
5. Place the thumb of each hand beside the spine, beginning with the shoulders, and move the thumbs down the spine to the waist. Repeat several times.
6. Finish by placing palms on each side of the patient’s neck and make continuous, long sweeping strokes down the neck, across each shoulder, and down the back near the spine. Repeat the entire pattern several times

ஒப்புதல் அறிக்கை

தேதி:

எனக்கு இந்த ஆய்வைப்பற்றிய முழு விவரம் விளக்கமாக எடுத்துரைக்கப்பட்டது. இந்த ஆய்வில் பங்கு பெறுவதில் உள்ள

நன்மைகள் மற்றும் தீமைகள் பற்றி நான் புரிந்து கொண்டேன். நான் இந்த ஆய்வில் தானாகவே முன்வந்து பங்கு பெறுகிறேன். மேலும் எனக்கு இந்த ஆய்வில் இருந்து எந்த நேரமும் விலகிக் கொள்ள முழு அனுமதி வழங்கப்பட்டுள்ளது. என்னுடைய சிகிச்சை ஆவணங்களைப் பார்வையிட்டு அதில் உள்ள விவரங்களை ஆய்வில் பயன்படுத்திக் கொள்ள அனுமதி அளிக்கின்றேன். என்னுடைய பெயர் மற்றும் அடையாளங்கள் ரகசியமாக வைத்துக் கொள்ளப்படும் என்றும் எனக்கு உறுதியளிக்கப்பட்டுள்ளது.

இப்படிக்கு,

CERTIFICATE OF VALIDATION

This is to certify that the tool,

Section A: Part I: Demographic data

Part II: Clinical variable

Section B: Modified State trait anxiety scale

Section C: Numerical rating pain scale

Prepared by G.Kousalya 1 year M.Sc (N) student of Government Rajaji Hospital, Madurai who has undertaken the study field titled of "A study to assess the effectiveness of slow stroke back massage on anxiety and shoulder pain among stroke Patients in medical ward, Government Rajaji Hospital, Madurai" has been validated by me.

9/4/11

SIGNATURE OF THE EXPERT

NAME:

DESIGNATION:

DATE:

PROFESSOR AND HEAD
DEPARTMENT OF MEDICINE
MADURAI MEDICAL COLLEGE
MADURAI-625 020.

CERTIFICATE OF VALIDATION

This is to certify that the tool,

Section A: Part I: Demographic data

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SIGNATURE OF THE EXPERT

NAME: B. SARA

DESIGNATION: READER IN NURSING

DATE: 15/04/11

CERTIFICATE OF VALIDATION

This is to certify that the tool,

Section A: Part I: Demographic data

Part II: Clinical variable

Section B: Modified State trait anxiety scale

Section C: Numerical rating pain scale

Prepared by G.Kousalya 1 year M.Sc (N) student of Government Rajaji Hospital, Madurai who has undertaken the study field titled of "A study to assess the effectiveness of slow stroke back massage on anxiety and shoulder pain among stroke Patients in medical ward, Government Rajaji Hospital, Madurai" has been validated by me.

SIGNATURE OF THE EXPERT
NAME: R. DEEPA
DESIGNATION: ASSO. PROF
DATE: 10.4.11

CERTIFICATE OF VALIDATION

This is to certify that the tool,

Section A:Part I: Demographic data

Part II: Clinical variable

Section B: Modified State trait anxiety scale

Section C: Numerical rating pain scale

Prepared by G.Kousalya 1 year M.Sc (N) student of Government Rajaji Hospital, Madurai who has undertaken the study field titled of "A study to assess the effectiveness of slow stroke back massage on anxiety and shoulder pain among stroke Patients in medical ward, Government Rajaji Hospital, Madurai" has been validated by me.

SIGNATURE OF THE EXPERT
NAME: M JASLING
DESIGNATION: PROFESSOR
DATE: 27.4.11

SARA NURSING COLLEGE

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website : www.saranursingcollege.com

TOOL VALIDITY CERTIFICATE

This is to certify that the tool developed by Mr. / Ms **G.Kousalya** II year M.Sc Nursing student of College of Nursing Madurai Medical College. Madurai has been validated by the undersigned. The suggestions and modifications given by me will he incorporated by the investigator in concern with their respective guide.

Title of the research study: A study to assess the effectiveness of Slow stroke back Massage on Anxiety and shoulder pain among stroke patients in Government Rajaji Hospital, Madurai.

Name : S. Victor Devasirvadam M.Sc (N), Ph.D (N.)

Designation : Vice Principal

Date : 22.04.2011.

Place : Dharapuram

Signature 22/4/11.

SARA NURSING COLLEGE * Tirupur Dist 638 673 * MANAKADAVU - DHARAPURAM

Vice Principal
SARA NURSING COLLEGE
Manakadavu Dharapuram-638 673
Tirupur-Dist

Seal

CERTIFICATE OF VALIDATION

This is to certify that the tool,

Section A: Part I: Demographic data

Part II: Clinical variable

Section B: Modified State trait anxiety scale

Section C: Numerical rating pain scale

Prepared by G.Kousalya II year M.Sc (N) student of Government Rajaji Hospital, Madurai who has undertaken the study field titled of "A study to assess the effectiveness of slow stroke back massage on anxiety and shoulder pain among stroke Patients in medical ward, Government Rajaji Hospital, Madurai" has been validated by me.

SIGNATURE OF THE EXPERT

NAME: N. SURESH KUMAR

DESIGNATION: Asst. Prof. Cum Psychologist

DATE: 24/1/12

N. SURESH KUMAR. M.A., M.Phil.
Asst. Prof. Cum Clinical Psychologist
Dept. of Psychiatry
Madurai Medical College
Madurai-20.

CERTIFICATE OF TAMIL EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation "A Study to assess the effectiveness of slow stroke back massage on reduction of anxiety and shoulder pain among stroke patients in Medical ward, Government Rajaji hospital, Madurai" done by Mrs.G.Kousalya, M.Sc., Nursing II year student, College of Nursing, Madurai Medical College, Madurai - 20 has been edited for Tamil language appropriateness.

Name: S. SELVI

Designation: H M

Institution:

25/1/12

Signature

தலைமையாசிரியர்
உ.ஐ. நடுநிலைப்பள்ளி
கஸ்தூரி நாயக்கன்பாளையம்
வடவள்ளி (P.O)

CERTIFICATE OF ENGLISH EDITING

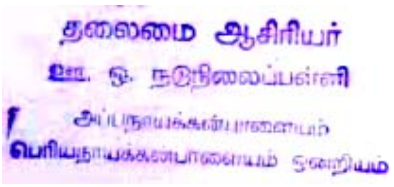
TO WHOMSOEVER IT MAY CONCERN

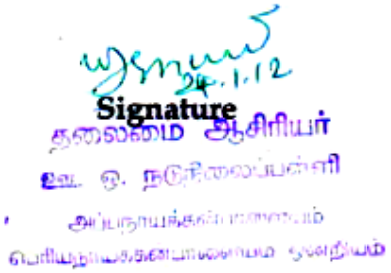
This is to certify that the dissertation "A Study to assess the effectiveness of slow stroke back massage on reduction of anxiety and shoulder pain among stroke patients in Government Rajaji hospital, Madurai" done by Mrs.G.Kousalya, M.Sc., Nursing II year student, College of Nursing, Madurai Medical College, Madurai - 20 has been edited for English language appropriateness.

Name:

Designation:

Institution:





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Certificate Course in Counselling and Slow Stroke Back Massage

Reg. No. PCC/21/July 2011/162 Date: 10/07/2011

This is to certify that **Ms. KOUSALYA .G**

has completed our **CERTIFICATE COURSE IN COUNSELLING AND SLOW STROKE BACK MASSAGE** *(24hrs Part-time Education Programme designed and offered by experts) by effectively particpating in theory & practical classes and successfully completing all the exercises. She has been placed in* **FIRST CLASS**

THE VALLIAMMAL INSTITUTION (TVI) 11/6, B.B. Road 2nd Street, Pankajam Colony, Madurai-625 009.

Prof. Dr. S. Jeyapragasam M.Sc.,M.A.,M.A.,Ph.D.,
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Dr. B. Ananthi M.Sc.,M.A.,M.Phil.,Ph.D.,
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The Valliammal Institution (TVI)

CLINICAL PHOTOS